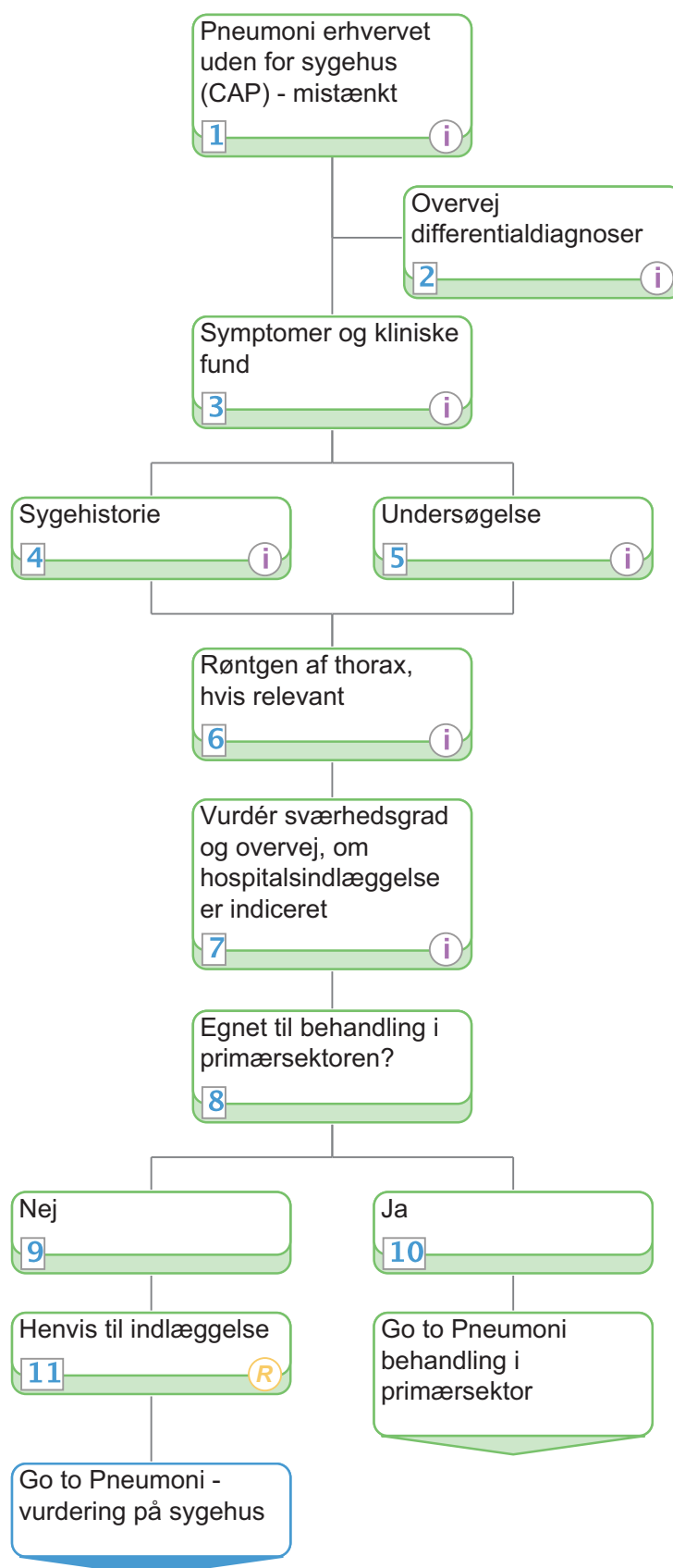
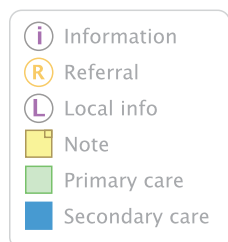


Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus



IMPORTANT NOTE

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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

1 Pneumoni erhvervet uden for sygehus (CAP) - mistænkt

Quick info:

Pneumoni erhvervet udenfor sygehus (community acquired pneumonia, CAP)

- Denne skematiske gennemgang dækker diagnostik og vurdering af pneumoni erhvervet uden for sygehus
- Forløbet dækker ikke aspirationspneumoni, hospitalserhvervet (nosokomial) pneumoni (HAP) og pneumoni hos immuninkompetente
- Pneumoni er årsag til 4-7 indlæggelser per 1000 personer/år svarende til ca. 15.000 årlige indlæggelser
- Hertil kommer pneumoni, der behandles i primærsektoren, som udgør hovedparten af pneumonierne
 - Pneumoni udgør ca 1-2% af henvendelser i almen praksis
- Den samlede mortalitet ved pneumoni (indlagte og ikke-indlagte) er gennemsnitligt 2-3 %
- For indlagte patienter er mortaliteten ved pneumoni 6-14%
- Mortaliteten stratificeret ift CURB 65- risikovurderingsscoren:
 - 0-3% mortalitet ved CURB 65-score 0-1
 - 5-21% mortalitet ved CURB 65-score 2-3
 - 28-60% mortalitet ved CURB 65-score 4-5

Som oftest mistænkes diagnosen pneumoni ved nyopståede respiratoriske symptomer:

- Hoste
- Feber
- Ekspektorat
- Pleuritsmerter
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Diagnosen kan støttes af røntgenundersøgelse af thorax
- Mange mikroorganismer er blevet associeret med pneumoni erhvervet uden for sygehus, men hovedparten er forårsaget af *Streptococcus pneumoniae*

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Thomsen RW, Riis A, Nørgaard M, Jacobsen J, Christensen S, McDonald CJ, et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. *Journal of internal medicine*. 2006 Apr;259(4):410.

Hoare Z, Lim WS. Pneumonia: update on diagnosis and management. *British Medical Journal* 2006; 332:1077–1079

Rapport , Sygdomsmønster i almen praksis, Århus Amt 1993 Laurtis Ovensen, Svend Juul, Carl Erik Mabeck, Institut for Almen Medicin, Århus Universitet 1997

Rapport, Luftvejsinfektioner i almen praksis, Jens Damsgård, Bente Gahrn-Hansen og Anders Munck, Audit Projekt Odense, 2006
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British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

2 Overvej differentialdiagnoser

Quick info:

- Forkølelse
- Influenza
- Akut exacerbation af obstruktive lungesygdomme (KOL + astma)
- Akut bronkitis
- Lungeemboli
- Hjerteinsufficiens og hyperventilation sekundær til metabolisk acidose ved sepsis
- Lungecancer (se billede af [lungemalignitet](#))
- Tuberkulose (se billede af [tuberkulose](#))

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

3 Symptomer og kliniske fund

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

Quick info:

Symptomer:

- Præsenterer sig i reglen med hoste og mindst 1 andet symptom
- Over 90 % præsenterer sig med hoste
- 66 % præsenterer sig med dyspnø
- 66 % præsenterer sig med ekspektoration
- 50 % præsenterer sig med pleuritsmerter
- Almen symptomer
- Ingen forekomst af ondt i halsen og rhinoré

Kliniske fund:

- Feber - rektal temperatur $\geq 38^{\circ}\text{C}$
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Puls > 100
- Øget respirationsfrekvens

Præsentation hos ældre:

- Kan præsentere sig med konfusion
- Der kan være få kliniske fund
- Ofte associeret med komorbiditet
- Kan være associeret med aspiration

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.

www.lungemedicin.dk

Sund-Levander M, Forsberg C, Wahren LK. Normal oral, rectal, tympanic and axillary body temperature in adult men and women: a systematic literature review. *Scandinavian Journal of Caring Sciences*. Vol. 16 No. 2 (June 2002): 122.

O'Grady NP, Barie PS, Barlett J, Bleck T, Garvey G, Jacobi J et al. Practice guidelines for evaluating new fever in critical ill adult patients. 2003. Task Force of the Society of Critical care Medicine and the Infectious Diseases Society

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

4 Sygehistorie

Quick info:

Sygehistorie:

- Hoste
- Dyspnø
- Ekspektoration (mængde/udseende)
- Pleuritsmerter
- Almen symptomer
- Ingen forekomst af ondt i halsen eller rinoré

5 Undersøgelse

Quick info:

Undersøgelse:

- Auskultation og perkussion af thorax (krepitation, dæmpning og ophævet respiration)
- Puls
- Respirationsfrekvens
- Temperatur
- Blodtryk
- Ekspektoration (mængde/udseende)
- Rejseanamnese
- Overvej CRP måling
- Overvej måling af ilt saturation
- Overvej mini mental test, specielt hos ældre (1 point for hvert rigtigt svar):
 - Alder

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

- Fødselsdag
- Tid (inden for 1 time)
- År
- Navn på lokalt hospital
- Genkendelse af to personer
- Huske adresse
- Dato for 2. verdenskrig
- Regentens navn
- Tælle tilbage fra 20 til 1
- Anvend en valideret skala (fx CRB 65, se: Vurdér sværhedsgrad) for at vurdere sværhedsgrad og behov for indlæggelse
- Rutinemæssig mikrobiologisk undersøgelse er ikke nødvendig ved pneumoni erhvervet uden for sygehus (CAP)

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

6 Røntgen af thorax, hvis relevant

Quick info:

- En rent klinisk diagnose er ofte upræcis
- Røntgenundersøgelse af thorax er nøgleundersøgelsen til støtte for diagnosen
- Ukomplerede patienter med en klar diagnose kan håndteres i primærsektoren uden røntgenundersøgelse af thorax

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication; no. 59. Edinburgh: SIGN; 2002.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

7 Vurdér sværhedsgrad og overvej, om hospitalsindlæggelse er indiceret

Quick info:

CRB 65-indeks er et anbefalet redskab til risikovurdering i primærsektoren af personer med pneumoni:

- Hver faktor scorer 1 point:
 - Konfusion (mini mental test-score < 8)
 - Respirationsfrekvens > 30/minut
 - Blodtryk < 90 mmHg systolisk
 - 65 år eller derover
- CRB 65-score på 3 eller derover indikerer høj risiko for dødsfald og berettiger hasteindlæggelse på hospital
- CRB 65-score på 1 eller 2 indikerer mellemhøj risiko for dødsfald – hospitalsindlæggelse er sandsynligvis nødvendig
- CRB-score på 0 indikerer lav risiko for dødsfald – angiver, at behandling i primærsektoren er velegnet

Yderligere faktorer, der skal overvejes ved risikovurdering og klinisk vurdering af den bedste behandlingsmulighed:

- Komorbiditet
- Sociale forhold
- Dobbeltzijdig eller multilobær involvering ved røntgenundersøgelse af thorax
- Hypoxæmi (iltsaturation < 90%)
- Leukocytter < 4 mia/l eller > 30 mia/l
- Evt. andre resultater af laboratorieundersøgelser

Vurder om patientens tilstand og hjemlige forhold tillader fortsat behandling i primærsektoren. Henvi til akut indlæggelse ved tegn på svær infektion.

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.

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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Pneumoni erhvervet uden for sygehus - mistænkt

The pathway is consistent with the following quality-appraised guidelines (1,2,3,4,10). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page	Evidence grade	Reference IDs
Pneumoni erhvervet uden for sygehus (CAP) - mistænkt	U	2, 4, 1, 23, 15, 16, 24, 25
Overvej differentialdiagnoser	U	2
Symptomer og kliniske fund	U	2, 4, 23, 20, 19
Røntgen af thorax, hvis relevant	1	1, 2, 3, 4
Vurdér sværhedsgrad og overvej, om hospitalsindlæggelse er indiceret	1	1, 2, 4

References

This is a list of all the references that have passed critical appraisal for use in the pathway Pneumoni erhvervet uden for sygehus

ID Reference

- 1 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults (2004 update). London: BTS; 2004.
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- 4 Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.
- 5 Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-1875.
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Pneumoni erhvervet uden for sygehus - mistænkt

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

ID Reference

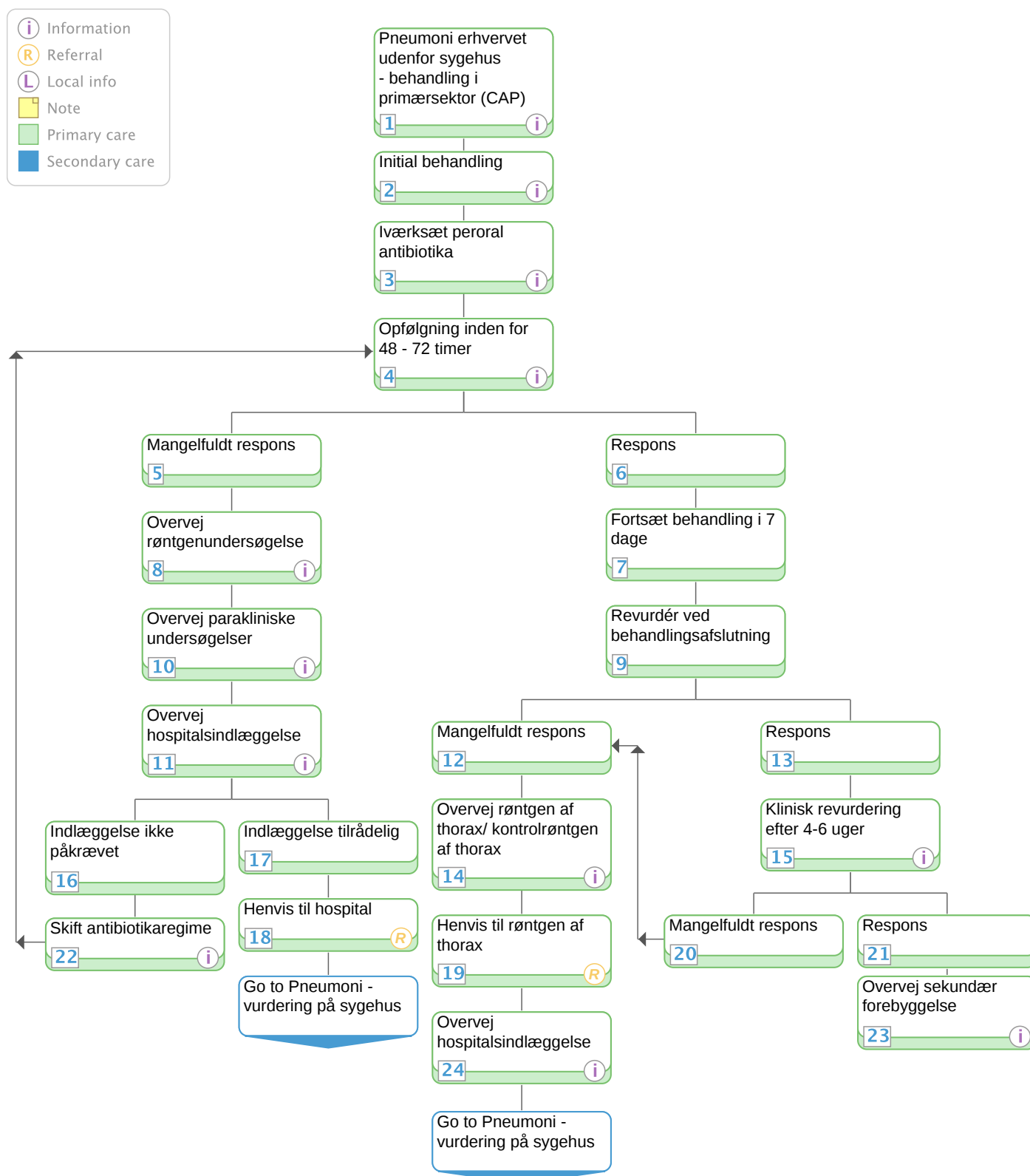
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- 15 Thomsen RW, Riis A, Nørgaard M et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. Journal of internal medicine 2006; 259: 410-417.
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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus



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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

1 Pneumoni erhvervet udenfor sygehus - behandling i primærsektor (CAP)

Quick info:

Pneumoni erhvervet udenfor sygehus (community acquired pneumonia, CAP)

- Denne skematiske gennemgang dækker diagnostik og vurdering af pneumoni erhvervet uden for sygehus
- Forløbet dækker ikke aspirationspneumoni, hospitalserhvervet (nosokomial) pneumoni (HAP) og pneumoni hos immuninkompetente
- Pneumoni er årsag til 4-7 indlæggelser per 1000 personer/år svarende til ca. 15.000 årlige indlæggelser
- Hertil kommer pneumoni, der behandles i primærsektoren, som udgør hovedparten af pneumonierne
 - Pneumoni udgør ca 1-2% af henvendelser i almen praksis
- Den samlede mortalitet ved pneumoni (indlagte og ikke-indlagte) er gennemsnitligt 2-3 %
- For indlagte patienter er mortaliteten ved pneumoni 6-14%
- Mortaliteten stratificeret ift CURB 65- risikovurderingsscoren:
 - 0-3% mortalitet ved CURB 65-score 0-1
 - 5-21% mortalitet ved CURB 65-score 2-3
 - 28-60% mortalitet ved CURB 65-score 4-5

Som oftest mistænkes diagnosen pneumoni ved nyopståede respiratoriske symptomer:

- Hoste
- Feber
- Ekspektorat
- Pleuritsmerter
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Diagnosen kan støttes af røntgenundersøgelse af thorax
- Mange mikroorganismer er blevet associeret med pneumoni erhvervet uden for sygehus, men hovedparten er forårsaget af *Streptococcus pneumoniae*

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Thomsen RW, Riis A, Nørgaard M, Jacobsen J, Christensen S, McDonald CJ, et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. *Journal of internal medicine*. 2006 Apr;259(4):410.

Hoare Z, Lim WS. Pneumonia: update on diagnosis and management. *British Medical Journal* 2006; 332:1077–1079

Rapport , Sygdomsmønster i almen praksis, Århus Amt 1993 Laurtis Ovensen, Svend Juul, Carl Erik Mabeck, Institut for Almen Medicin, Århus Universitet 1997

Rapport, Luftvejsinfektioner i almen praksis, Jens Damsgård, Bente Gahrn-Hansen og Anders Munck, Audit Projekt Odense, 2006
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Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

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2 Initial behandling

Quick info:

Sikre:

- Væskeindtag
- Ernæring
- Tilbud om rygeafvænning

Giv:

- Analgetika for pleuritsmerter fx paracetamol

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 26-Jan-2010 © Map of Medicine Ltd

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

3 Iværksæt peroral antibiotika

Quick info:

Tidlig antibiotikabehandling:

- Reducerer morbiditet og mortalitet
- Reducerer risiko for komplikationer
- Er i reglen empirisk
- *Streptococcus pneumoniae* er den mest almindelige bakterie ved pneumoni erhvervet uden for sygehus
- Foretrukne førstevalgsbehandling:
 - Penicillin 2 mio. x 4 po
 - Ved penicillinallergi: claritromycin 500 mg x 2 po
 - Behandlingsvarighed mindst 7 dage, heraf 3-5 dage efter afebril

Fluoroquinoloner anbefales ikke som førstevalgsbehandling eller som behandling i primærsektoren ved pneumoni.

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

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Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

Mills GD, Oehley MR, Arrol B. Effectiveness of beta lactam antibiotics compared with antibiotics active against atypical pathogens in non-severe community acquired pneumonia: meta-analysis. BMJ 2005; 330: 456.

Mills GD, Oehley MR, Arrol B. Antibiotic choice makes little difference in CAP. J Fam Pract 2005; 54: 494.

4 Opfølgning inden for 48 - 72 timer

Quick info:

Patienten oplyses om at tage kontakt til egen læge ved forværring eller ved manglende bedring indenfor 48 - 72 timer.

Klinisk vurdering efter behov:

- Sværhedsgrad af symptomer
- Stetoskopiske fund
- Puls
- Respirationsfrekvens
- Temperatur
- Blodtryk
- Overvej C-reaktivt protein (CRP) måling
- Overvej måling af ilt saturation
- Overvej mini mental test
- Anvend en valideret skala (fx CRB 65, se "Trin: Overvej hospitalsindlæggelse") for at vurdere sværhedsgrad og behov for indlæggelse

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.

8 Overvej røntgenundersøgelse

Quick info:

- Hvis der er ikke er indtrådt bedring indenfor 48 til 72 timer, overvej røntgenundersøgelse af thorax

Referencer:

Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

10 Overvej parakliniske undersøgelser

Quick info:

- Mikrobiologisk undersøgelse er ikke indiceret rutinemæssigt
- Valget af om der skal foretages mikrobiologisk undersøgelse bør rette sig efter sygdommens sværhedsgrad, forekomst af risikofaktorer og respons på behandling

Overvej:

- Ekspektorat til dyrkning, resistens og PCR for atypisk pneumoni
- Måling af CRP, leukocytter og differentialetælling
- Ved mistanke om tuberkulose henvis til lungemedicinsk afdeling

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

11 Overvej hospitalsindlæggelse

Quick info:

Gentag risikoscoren vha. CRB 65-indeks.

CRB 65-indeks er et anbefalet redskab til risikovurdering i primærsektoren af personer med pneumoni:

- Hver faktor scorer 1 point:
 - Konfusion (mini mental test-score < 8)
 - Respirationsfrekvens > 30/minut
 - Blodtryk < 90 mmHg systolisk
 - 65 år eller derover
- CRB 65-score på 3 eller derover indikerer høj risiko for dødsfald og berettiger hasteindlæggelse på hospital
- CRB 65-score på 1 eller 2 indikerer mellemhøj risiko for dødsfald – hospitalsindlæggelse er sandsynligvis nødvendig
- CRB-score på 0 indikerer lav risiko for dødsfald – angiver, at behandling i primærsektoren er velegnet

Yderligere faktorer, der skal overvejes ved risikovurdering og klinisk vurdering af den bedste behandlingsmulighed:

- Komorbiditet
- Sociale forhold
- Dobbeltzijdig eller multilobær involvering ved røntgenundersøgelse af thorax
- Hypoxæmi (ilt saturation < 90%)
- Leukocytter < 4 mia/l eller > 30 mia/l
- Resultatet af evt. laboratorieundersøgelser

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 26-Jan-2010 © Map of Medicine Ltd

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

Vurder om patientens tilstand og hjemlige forhold tillader fortsat behandling i primærsektoren. Henvi til akut indlæggelse ved tegn på svær infektion.

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: 2004 Update.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

14 Overvej røntgen af thorax/ kontrolrøntgen af thorax

Quick info:

- Kontrolrøntgen foretages af alle med lungeinfiltrat
- Mistænkt lungecancer, hvis infiltratet ikke svinder inden for 6 uger
- Yderligere undersøgelser er påkrævet, hvis symptomerne ikke svinder fuldstændigt inden for 6-8 uger

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

15 Klinisk revurdering efter 4-6 uger

Quick info:

- Overvej opfølgning 4-6 uger efter behandlingens afslutning
- Hoste kan persistere ud over 8 uger, men bør være aftagende

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

22 Skift antibiotikaregime

Quick info:

Andre antibiotiske regimer, der skal overvejes, omfatter:

- Clarithromycin 500 mg x 2 po eller
- Moxifloxacin 400 mg po

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

23 Overvej sekundær forebyggelse

Quick info:

- Influenzavaccine anbefales til højrisikogrupper, alle personer over 65 år samt personer med kronisk lungesygdom, hjertesygdom, nyresygdom, leversygdom, immunsuppression eller diabetes
- Pneumokokvaccine kan være effektiv i de ovennævnte grupper (over 65 år/ kronisk sygdom, splenektomi)
- Overvej tidlig opsporing af KOL:
 - Lungefunktionsundersøgelse ved rygere, exrygere over 35 år og risikoerhverv. (se [KOL- anbefalinger for tidlig opsporing mv](#))
- Rådgiv om kost, rygning, alkohol og motion (KRAM)

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

- Giv tilbud om rygeafvænning, hvis relevant

Referencer:

KOL (kronisk obstruktiv lungelidelse) - anbefalinger for tidlig opsporing, opfølgning, behandling og rehabilitering. Sundhedsstyrelsen, 2006, www.sst.dk

Bekendtgørelse nr 723 af 13/06/2008 om gratis influenzavaccination til visse persongrupper

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

24 Overvej hospitalsindlæggelse

Quick info:

Gentag risikoscoren vha. CRB 65-indeks.

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 - Blodtryk < 90 mmHg systolisk
 - 65 år eller derover
- CRB 65-score på 3 eller derover indikerer høj risiko for dødsfald og berettiger hasteindlæggelse på hospital
- CRB 65-score på 1 eller 2 indikerer mellemhøj risiko for dødsfald – hospitalsindlæggelse er sandsynligvis nødvendig
- CRB-score på 0 indikerer lav risiko for dødsfald – angiver, at behandling i primærsektoren er velegnet

Yderligere faktorer, der skal overvejes ved risikovurdering og klinisk vurdering af den bedste behandlingsmulighed:

- Komorbiditet
- Sociale forhold
- Dobbeltsidig eller multilobær involvering ved røntgenundersøgelse af thorax
- Hypoxæmi (iltsaturation < 90%)
- Leukocytter < 4 mia/l eller > 30 mia/l
- Resultatet af evt. laboratorieundersøgelser

Vurder om patientens tilstand og hjemlige forhold tillader fortsat behandling i primærsektoren. Henvi til akut indlæggelse ved tegn på svær infektion

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: 2004 Update.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Pneumoni - behandling i primærsektoren

The pathway is consistent with the following quality-appraised guidelines (1,2,3,4,10). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Pneumoni erhvervet udenfor sygehus - behandling i primærsektor (CAP)

Iværksæt peroral antibiotika

Opfølgning inden for 48 - 72 timer

Overvej hospitalsindlæggelse

Overvej parakliniske undersøgelser

Overvej røntgenundersøgelse

Skift antibiotikaregime

Overvej røntgen af thorax/ kontrolrøntgen af thorax

Overvej hospitalsindlæggelse

Overvej sekundær forebyggelse

Klinisk revurdering efter 4-6 uger

Evidence grade

U

1

1

1

1

1

1

1

1

1

1

Reference IDs

2, 1, 4, 23, 15, 16, 24, 25

1, 2, 3, 5, 6, 9, 21

2, 3, 21

1, 2, 4

2

2, 3

2, 5

2

1, 2, 4

2, 5, 26, 27

2

References

This is a list of all the references that have passed critical appraisal for use in the pathway Pneumoni erhvervet uden for sygehus

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- 1 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults (2004 update). London: BTS; 2004.
<http://www.brit-thoracic.org.uk/Portals/0/Clinical%20Information/Pneumonia/Guidelines/MACAPPrevisedApr04.pdf>
- 2 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.
http://thorax.bmj.com/cgi/reprint/56/suppl_4/iv1
- 3 Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.
- 4 Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.
- 5 Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-1875.

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Pneumoni - behandling i primærsektoren

- Danske forløb > Lungemedicin > Pneumoni erhvervet uden for sygehus

ID Reference

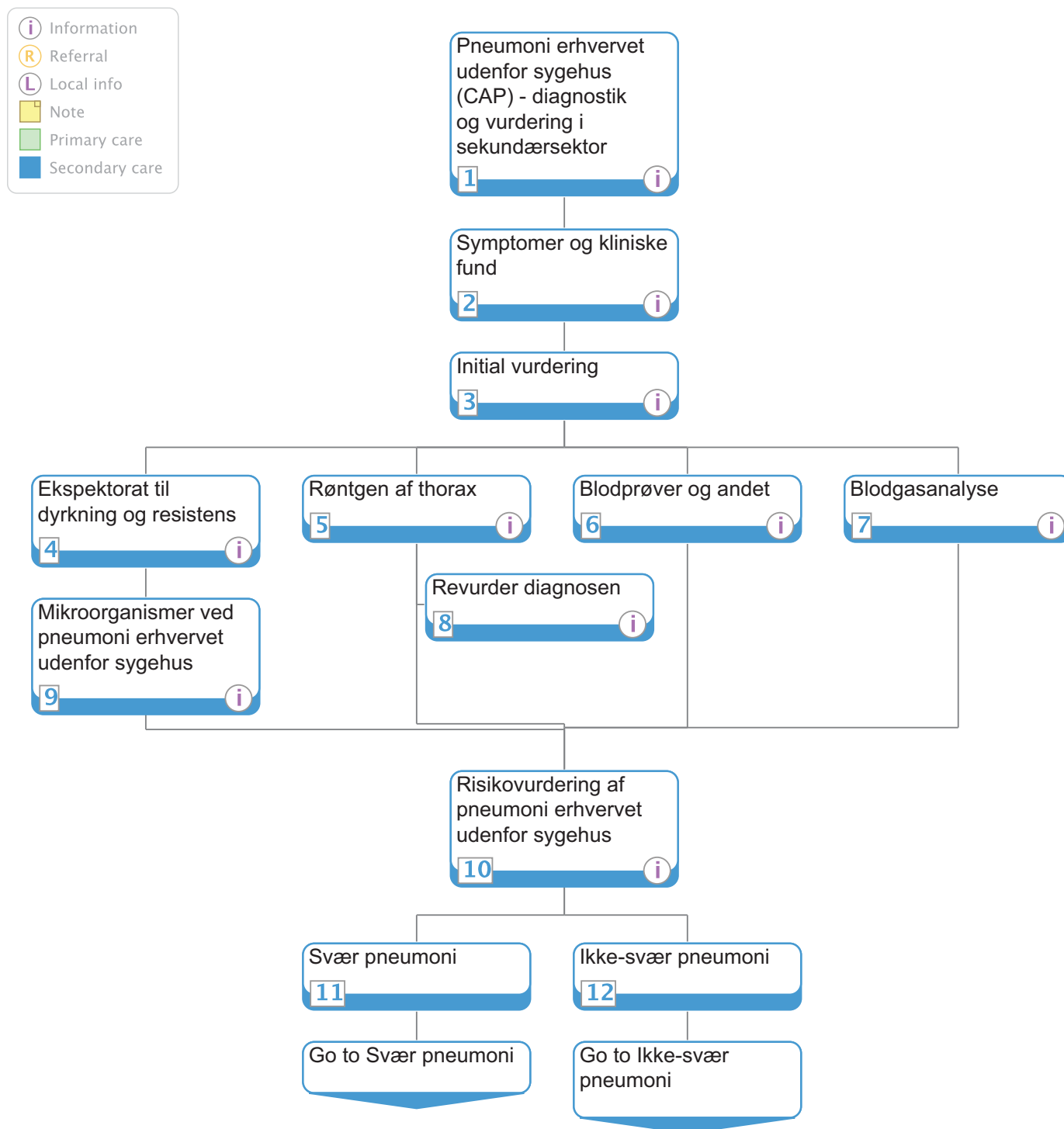
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www.sst.dk
 - 27 Bekendtgørelse nr 723 af 13/06/2008 om gratis influenzavaccination til visse persongrupper. 2008.

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus



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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

1 Pneumoni erhvervet udenfor sygehus (CAP) - diagnostik og vurdering i sekundærsektor

Quick info:

Pneumoni erhvervet udenfor sygehus (community acquired pneumonia, CAP)

- Denne skematiske gennemgang dækker diagnostik og vurdering af pneumoni erhvervet uden for sygehus
- Forløbet dækker ikke aspirationspneumoni, hospitalserhvervet (nosokomial) pneumoni (HAP) og pneumoni hos immuninkompetente
- Pneumoni er årsag til 4-7 indlæggelser per 1000 personer/år svarende til ca. 15.000 årlige indlæggelser
- Hertil kommer pneumoni, der behandles i primærsektoren, som udgør hovedparten af pneumonierne
 - Pneumoni udgør ca 1-2% af henvendelser i almen praksis
- Den samlede mortalitet ved pneumoni (indlagte og ikke-indlagte) er gennemsnitligt 2-3 %
- For indlagte patienter er mortaliteten ved pneumoni 6-14%
- Mortaliteten stratificeret ift CURB 65- risikovurderingsscoren:
 - 0-3% mortalitet ved CURB 65-score 0-1
 - 5-21% mortalitet ved CURB 65-score 2-3
 - 28-60% mortalitet ved CURB 65-score 4-5

Som oftest mistænkes diagnosen pneumoni ved nyopståede respiratoriske symptomer:

- Hoste
- Feber
- Ekspektorat
- Pleuritsmerter
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Diagnosen kan støttes af røntgenundersøgelse af thorax
- Mange mikroorganismer er blevet associeret med pneumoni erhvervet uden for sygehus, men hovedparten er forårsaget af *Streptococcus pneumoniae*

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Thomsen RW, Riis A, Nørgaard M, Jacobsen J, Christensen S, McDonald CJ, et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. *Journal of internal medicine*. 2006 Apr;259(4):410.

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Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

Fine MJ, *JAMA* 1996; 275: 134-41

2 Symptomer og kliniske fund

Quick info:

Symptomer:

- Præsenterer sig i reglen med hoste og mindst 1 andet symptom
- Over 90 % præsenterer sig med hoste
- 66 % præsenterer sig med dyspnø
- 66 % præsenterer sig med ekspektorat
- 50 % præsenterer sig med pleuritsmerter
- Almen symptomer
- Ingen forekomst af ondt i halsen og rhinoré

Kliniske fund:

- Feber - rektal temperatur $\geq 38^{\circ}\text{C}$
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Puls > 100
- Øget respirationsfrekvens

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Præsentation hos ældre:

- Kan præsentere sig med konfusion
- Der kan være få kliniske fund
- Ofte associeret med komorbiditet
- Kan være associeret med aspiration

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.

www.lungemedicin.dk

Sund-Levander M, Forsberg C, Wahren LK. Normal oral, rectal, tympanic and axillary body temperature in adult men and women: a systematic literature review. *Scandinavian Journal of Caring Sciences*. Vol. 16 No. 2 (June 2002): 122.

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British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

3 Initial vurdering

Quick info:

- Auskultation og perkussion af thorax (krepitation, dæmpning og ophævet respiration)
- Puls
- Respirationsfrekvens
- Temperatur
- Blodtryk
- Ekspektoration (mængde/ udseende)
- Rejseanamnese
- Mini mental test (1 point for hvert rigtigt svar):
 - Alder
 - Fødselsdag
 - Tid (inden for 1 time)
 - År
 - Navn på lokalt hospital
 - Genkendelse af to personer
 - Huske adresse
 - Dato for 2. verdenskrig
 - Regentens navn
 - Tælle tilbage fra 20 til 1

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

4 Ekspektorat til dyrkning og resistens

Quick info:

Patienter med svær pneumoni bør have sendt ekspektorat til dyrkning og resistens

For patienter med ikke-svær pneumoni bør ekspektorat til dyrkning og resistens overvejes, hvis:

- Patienten allerede behandles med antibiotika
- Patienten har cystisk fibrose eller bronkiektasi
- Der er mistanke om *Mycobacterium tuberculosis*

Supplerende undersøgelser ved højrisiko eller ikke-responderende pneumoni:

- PCR på ekspektorat for atypisk pneumoni (chlamydia, legionella, mycoplasma)
- Bronkoskopisk ophentede prøver (BAL eller bronkialt skyl) til dyrkning og resistensundersøgelse samt undersøgelse for tuberkulose
- Cytologisk undersøgelse af ekspektorat (evt. inkl. svampe og pneumocyster)
- PCR på ekspektorat for almindelige vira ved immuninkompetente

Referencer:

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

5 Røntgen af thorax

Quick info:

- Alle patienter skal have foretaget røntgenundersøgelse af thorax ved indlæggelsen

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

6 Blodprøver og andet

Quick info:

- C-reaktivt protein (CRP), leukocytter og differentialetælling
- Væsketal (creatinin, carbamid, natrium og kalium, hæmoglobin)
- Levertal (alanin-aminotransferase, basisk fosfatase og bilirubin)
- Bloddyrkning
 - Bør tages hos alle indlagte patienter med pneumoni, helst før opstart af antibiotisk behandling
- Pneumokokantigen i urin (PUT) bør udføres ved svær pneumoni

Supplerende undersøgelser ved højrisiko eller ikke-responderende pneumoni:

- Legionella urinantigen (LUT)
- Supplerende undersøgelse af ekspektorat (se "ekspektorat til dyrkning og resistens")

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

7 Blodgasanalyse

Quick info:

- Mål ilt saturation
- Hvis ilt saturation < 92 %, foretag arterieblodanalyse

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

8 Revurder diagnosen

Quick info:

Overvej:

- Eksacerbation af obstruktiv lungesygdomme (KOL + astma)
- Hjerterinsufficiens eller hyperventilation sekundær til metabolisk acidose forårsaget af sepsis
- Lungeemboli (se billede af [lungeemboli](#))
- Lungecancer (se billede af [lungemalignitet](#))
- Tuberkulose (se billede af [tuberkulose](#))
- Interstitiel lungesygdom
- Infektion med *Mycobacterium tuberculosis*

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

9 Mikroorganismer ved pneumoni erhvervet udenfor sygehus

Quick info:

Streptococcus pneumoniae er langt den hyppigste og forbundet med høj mortalitet.

Øvrige mulige mikroorganismer er:

- *Haemophilus influenzae*
- *Staphylococcus aureus*
- *Legionella spp.*
- *Gramnegative enterobacteriaceae*
- *Mycoplasma pneumoniae*
- *Chlamydia species*
- *Vira*

For 1/3 af tilfældene lykkes det ikke at identificere mikroorganisme

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

10 Risikovurdering af pneumoni erhvervet udenfor sygehus

Quick info:

CURB 65-score er den anbefalede risikovurderingsscore til bestemmelse af hensigtsmæssig behandlingsstrategi for personer indlagt på hospital med pneumoni:

- Hver faktor scorer 1 point:
 - Konfusion (mini mental test-score < 8)
 - Carbamid > 7 mmol/l
 - Respirationsfrekvens > 30 /minut
 - Blodtryk < 90 mmHg systolisk
 - 65 år eller derover
- CURB 65-score på 3 eller derover er lig med svært syg og i højrisikogruppen
- CURB 65-score på 4 eller 5, overvej indlæggelse på intensivafsnit
- CURB 65-score på 2 anses for under middel risiko – kan evt. behandles som ikke-svær pneumoni afhængig af supplerende risikofaktorer
- CURB 65-score på 0 eller 1 er lig med lav risiko for død og kan være egnet til behandling i primærsektoren

Yderligere faktorer, der skal overvejes ved risikovurdering og klinisk vurdering af den bedste behandlingsmulighed:

- Dobbeltsidig eller multilobær involvering ved røntgenundersøgelse af thorax
- Hypoxæmi (ilt saturation < 90%)
- Leukocytter < 4 mia/l eller > 30 mia/l
- Komorbiditet
- Evt. andre resultater af laboratorieundersøgelser

Disse supplerende faktorer medinddrages ved klinisk vurdering af den bedste behandlingsmulighed.

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.

Lim WS, van der Eerden MM et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. Thorax 2003; 58: 377-82.

Barlow G, Nathwani D, Davey P. The CURB65 pneumonia severity score outperforms generic sepsis and early warning scores in predicting mortality in community-acquired pneumonia. Thorax 2007; 62: 253-59.

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Pneumoni - diagnostik og vurdering på sygehus

The pathway is consistent with the following quality-appraised guidelines (1,2,3,4,10). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Pneumoni erhvervet udenfor sygehus (CAP) - diagnostik og vurdering i sekundærsektor

Symptomer og kliniske fund

Initial vurdering

Ekspektorat til dyrkning og resistens

Røntgen af thorax

Revurder diagnosen

Mikroorganismer ved pneumoni erhvervet udenfor sygehus

Blodprøver og andet

Blodgasanalyse

Risikovurdering af pneumoni erhvervet udenfor sygehus

Evidence grade

U

U

1

1

1

1

U

1

1

1

Reference IDs

2, 4, 1, 23, 15, 16, 24, 25

2, 23, 20, 19

2

2, 1

2

2

2

2, 1

2

2, 4, 12, 13, 21

References

This is a list of all the references that have passed critical appraisal for use in the pathway Pneumoni erhvervet uden for sygehus

ID Reference

- 1 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults (2004 update). London: BTS; 2004.
<http://www.brit-thoracic.org.uk/Portals/0/Clinical%20Information/Pneumonia/Guidelines/MACAPrevisedApr04.pdf>
- 2 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.
http://thorax.bmj.com/cgi/reprint/56/suppl_4/iv1
- 3 Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.
- 4 Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.
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http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=16135314&query_hl=7&itool=pubmed_docsum

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Pneumoni - diagnostik og vurdering på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

ID Reference

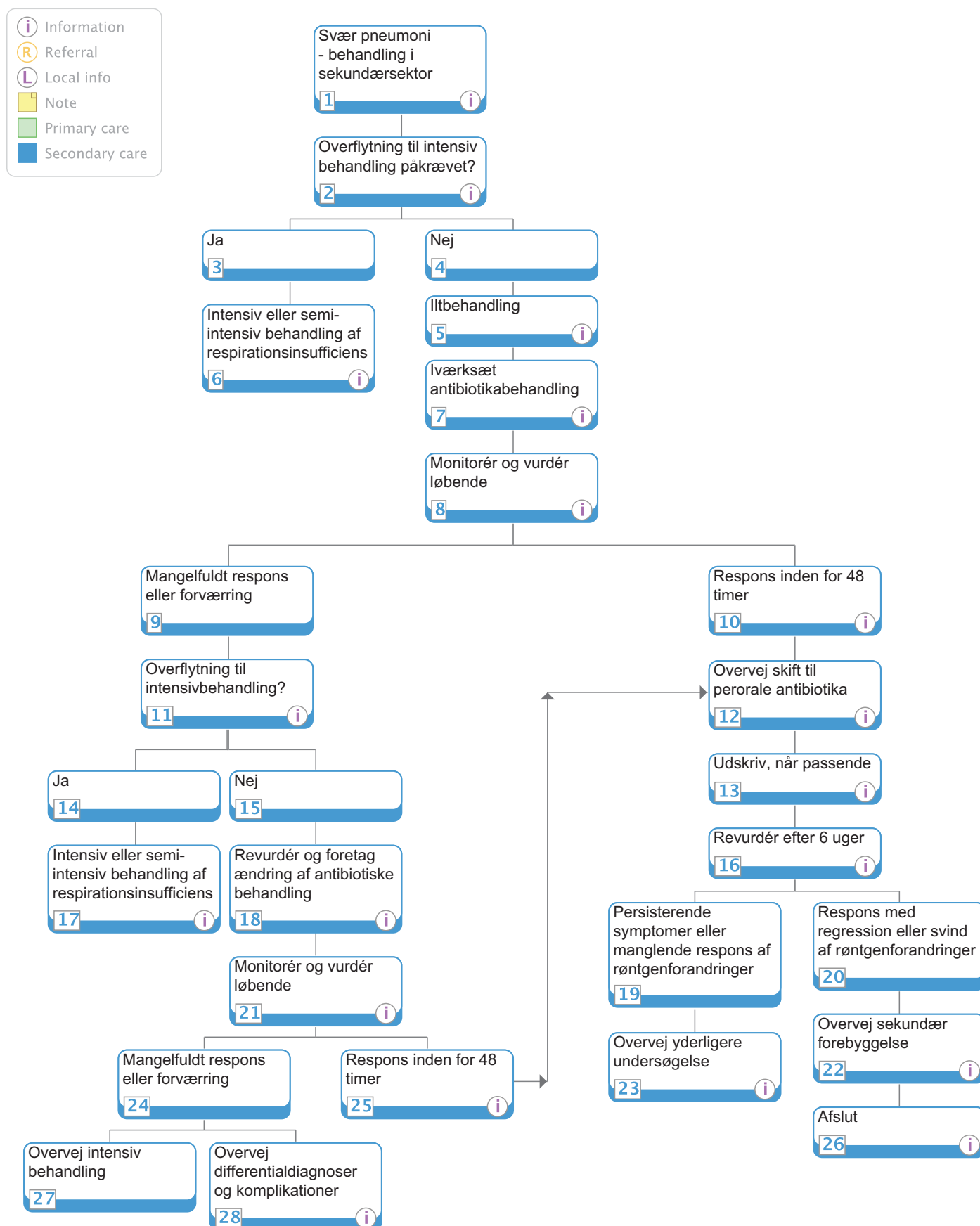
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<http://jcp.sagepub.com/cgi/content/abstract/48/11/1270>
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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus



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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

1 Svær pneumoni - behandling i sekundærsektor

Quick info:

Pneumoni erhvervet udenfor sygehus (community acquired pneumonia, CAP)

- Denne skematiske gennemgang dækker diagnostik og vurdering af pneumoni erhvervet uden for sygehus
- Forløbet dækker ikke aspirationspneumoni, hospitalserhvervet (nosokomial) pneumoni (HAP) og pneumoni hos immuninkompetente
- Pneumoni er årsag til 4-7 indlæggelser per 1000 personer/år svarende til ca. 15.000 årlige indlæggelser
- Hertil kommer pneumoni, der behandles i primærsektoren, som udgør hovedparten af pneumonierne
 - Pneumoni udgør ca 1-2% af henvendelser i almen praksis
- Den samlede mortalitet ved pneumoni (indlagte og ikke-indlagte) er gennemsnitligt 2-3 %
- For indlagte patienter er mortaliteten ved pneumoni 6-14%
- Mortaliteten stratificeret ift CURB 65- risikovurderingsscoren:
 - 0-3% mortalitet ved CURB 65-score 0-1
 - 5-21% mortalitet ved CURB 65-score 2-3
 - 28-60% mortalitet ved CURB 65-score 4-5

Som oftest mistænkes diagnosen pneumoni ved nyopståede respiratoriske symptomer:

- Hoste
- Feber
- Ekspektorat
- Pleuritsmerter
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Diagnosen kan støttes af røntgenundersøgelse af thorax
- Mange mikroorganismer er blevet associeret med pneumoni erhvervet uden for sygehus, men hovedparten er forårsaget af *Streptococcus pneumoniae*

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Thomsen RW, Riis A, Nørgaard M, Jacobsen J, Christensen S, McDonald CJ, et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. *Journal of internal medicine*. 2006 Apr;259(4):410.

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2 Overflytning til intensiv behandling påkrævet?

Quick info:

Overvej overflytning til intensiv behandling, hvis:

- Patienten ikke responderer hurtigt på behandling
- Persisterende hypoxi ($\text{PaO}_2 < 8 \text{ kPa}$) trods iltbehandling
- Svær acidose ($\text{pH} < 7,26$)
- Bevidsthedssvækkelse
- Tiltagende hyperkapni
- Hvis der er respiratoriske eller kardiovaskulære komplikationer

Mange patienter med pneumoni og hypoxæmi har trods højt iltflow behov for assisteret ventilation i form af non-invasiv ventilation (NIV) eller continuous positive airways pressure (CPAP) eller intubation, hvorfor dette kun bør foregå i semi-intensive og intensiv afsnit.

CURB 65-score er den anbefalede risikovurderingsscore til bestemmelse af hensigtsmæssig behandlingsstrategi for personer indlagt på hospital med pneumoni. Se risikovurdering under [Pneumoni - vurdering på sygehus](#).

- CURB 65-score på 3 eller derover er lig med svært syg og i højrisikogruppen.

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Ved CURB 65-score på 4 eller 5, overvej indlæggelse på intensivafsnit.
- Medinddrag supplerende faktorer ved den kliniske vurdering

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: 2004 Update.

Niederman MS, Mandell LA, Anzueto A et al. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med 2001; 163: 1730-54.

5 Iltbehandling

Quick info:

- Ved ilt saturation < 92 %, foretages arterieblodanalyse (registrér ilt dosering)
- Doser ilttilskud til SaO₂ > 92 % eller PaO₂ > 8 kPa
- Vær opmærksom på risiko for CO₂-retention:
 - Brug den lavest mulige iltkoncentration
 - Monitorér med arterieblodanalyse
- Indikationer for iltbehandling:
 - Arteriel PaO₂ < 8 kPa
 - Systolisk blodtryk < 100 mmHg
 - Metabolisk acidose med hydrogencarbonat < 18 mmol/l
 - Respirationsfrekvens > 24/minut

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

6 Intensiv eller semi-intensiv behandling af respirationsinsufficiens

Quick info:

- Intensiv eller semiintensiv behandling af respirationsinsufficiens ligger uden for rammerne af denne gennemgang

7 Iværksæt antibiotikabehandling

Quick info:

- Opstart intravenøs antibiotisk behandling umiddelbart efter diagnosticering
- Behandlingen bør være iværksat hurtigst muligt, helst inden for 4 timer efter indlæggelse
- Empirisk behandling anbefales indtil der foreligger mikrobiologisk ætiologi

Følgende antibiotikakombinationer anses for ligeværdige ved svær pneumoni:

- Penicillin 2 MIE x 4 iv + ciprofloxacin 500 mg x 2 po (eller 400 mg x 2 iv)
- Penicillin 2 MIE x 4 iv + clarithromycin 500 mg x 2 iv
- Penicillin 2 MIE x 4 iv + moxifloxacin 400 mg x 1 iv
- Ved penicillinallergi: cefuroxim 1,5 g x 3 iv+ ciprofloxacin 400 mg x 2 iv/tbl. ciprofloxacin 500 mg x 2 po
- Revurder, hvis mikroorganisme og følsomhed foreligger

Hvis mikroorganismen er kendt, behandles efter resistensbestemmelse med smallesmuligt antibiotika. Anbefalede behandling:

- *Streptococcus pneumoniae*:
 - Benzylpenicillin 2 MIE x 4 iv
 - Ved penicillin-allergi cefuroxim 1,5 g x 3 iv
 - Ved penicillin-anafylaksi clarithromycin 500 mg x 2 iv
- *Haemophilus influenzae*:
 - Pivampicillin 1 g x 4 iv
 - Ved penicillinallergi cefuroxim 1,5 g x 3 iv eller ciprofloxacin 500 mg x 2 po
- *Mycoplasma pneumoniae* og *Chlamydia pneumoniae* :
 - Clarithromycin 500 mg x 2 iv
- *Gram-negative enterobacteriaceae* :
 - Behandles efter resistenssvar

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- *Staphylococcus aureus* :
 - Behandles efter resistenssvar
 - Dicloxacillin 1 g x 4 iv + fusidin 500 mg x 3 po eller
 - Cefuroxim 1,5 g x 3 + fusidin 500 mg x 3
- *Pseudomonas aeruginosa* :
 - Behandles efter resistenssvar
 - Ofte piperacillin/tazobactam 4 g x 3 + gentamycin /toframycin eller
 - Piperacillin/tazobactam 4 g x 3 + ciprofloxacin 500 mg x 2 po
- *Legionella* :
 - Ciprofloxacin 400 mg x 2 iv + rifampicin 300 mg x 2 po
 - Alternativt som monoterapi moxifloxacin 400 mg x 1 iv
- Overvej at give kortikosteroider, hvis stærk mistanke om *Pneumocystis jiroveci*-pneumoni og HIV

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Pneumonibehandling. Rationel Farmakoterapi nr. 12/2003. <http://www.irf.dk>

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

Estimation of Cefuroxime Dosage Using Pharmacodynamic Targets, MIC Distributions, and Minimizations of Risk Funktion. The Journal of Clinical Pharmacology. 2008;48:1270.

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Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.

Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

Mills GD, Oehley MR, Arrol B. Effectiveness of beta lactam antibiotics compared with antibiotics active against atypical pathogens in non-severe community acquired pneumonia: meta-analysis. BMJ 2005; 330: 456.

Salkind AR, Cuddy PG, Foxworth JW. Fluoroquinolone treatment of community-acquired pneumonia: a meta-analysis. Ann Pharmacother 2002; 36: 1938-43.

Mills GD, Oehley MR, Arrol B. Antibiotic choice makes little difference in CAP. J Fam Pract 2005; 54: 494.

Briel M, Bucher HC, Boscacci R et al. Adjunctive corticosteroids for *Pneumocystis jiroveci* pneumonia in patients with HIV-infection. Cochrane Database Syst Rev 2006; CD006150.

8 Monitorér og vurder løbende

Quick info:

Monitorér mindst hver 6. - 12. time i de første 48 timer

- Temperatur
- Puls
- Respirationsfrekvens
- Blodtryk
- Mental status
- Almentilstanden
- Ilt saturation og evt. arterieblodanalyse
- Diurese/ væskebalance

Ved mangelfuld respons kan suppleres med følgende undersøgelser:

- C-reaktivt protein (CRP) (falder hurtigt på vellykket behandling)
- Leukocytter og differentieltælling
- Ny røntgenundersøgelse af thorax

Giv ernæringsstøtte, hvis sygdommen er langvarig.

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS 2001.

10 Respons inden for 48 timer

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Quick info:

Adækvat respons bedømt ved:

- Feberresolution ($< 38^{\circ}$) > 8 timer
- Puls < 100
- Takypnø-, hypotensions-, hypoxirespons
- Forbedret leukocytal og fald i C-reaktivt protein (CRP)
- Ingen bakteræmi

Referencer

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

11 Overflytning til intensivbehandling?

Quick info:

Overvej overflytning til intensiv behandling, hvis:

- Patienten ikke responderer hurtigt på behandling
- Persisterende hypoxi ($\text{PaO}_2 < 8$ kPa) trods iltbehandling
- Svær acidose ($\text{pH} < 7,26$)
- Bevidsthedssvækkelse
- Tiltagende hyperkapni
- Hvis der er respiratoriske eller kardiovaskulære komplikationer

Mange patienter med akut pneumoni og hypoxæmi har trods højt iltflow behov for assisteret ventilation i form af non-invasive ventilation (NIV) eller continuous positive airways pressure (CPAP) eller intubation, hvorfor dette kun bør foregå i semi-intensive og intensiv afsnit.

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- CURB 65-score på 3 eller derover er lig med svært syg og i højrisikogruppen.
- Ved CURB 65-score på 4 eller 5, overvej indlæggelse på intensivafsnit.
- Medinddrag supplerende faktorer ved den kliniske vurdering

Referencer:

- British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.
- British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: 2004 Update.
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12 Overvej skift til perorale antibiotika

Quick info:

Ved intravenøs antibiotika overvej skift til peroral antibiotika. Valg af peroralt antibiotikum afhænger af i.v. behandling:

- Simpelt skift til tilsvarende perorale midler
- *Streptococcus pneumoniae*:
 - Penicillin 2 MIE x 4 po
 - Ved penicillinallergi: clarithromycin 500 mg x 2 po
 - Samlet behandlingslængde 7-10 dage
- *Haemophilus influenzae*:
 - Pivampicillin 700 mg x 3 po
 - Ved ampicillinresistens amoxicillin med clavulansyre 500 mg/125 mg x 3 po
 - Ved penicillinallergi ciprofloxacin 500 mg x 2 po
 - Samlet behandlingslængde 10-14 dage
- *Mycoplasma pneumoniae*
 - Roxithromycin 150 mg x 2 po
 - Samlet behandlingslængde 14 dage
- *Chlamydia pneumoniae* :
 - Clarithromycin 500 mg x 2 po
 - Doxycyclin 200 mg po initialt, derpå 100 mg x 1 po

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Samlet behandlingslængde 14-21 dage
- *Legionella* :
 - Roxithromycin 300 mg x 2 po (dobbeltdosis) evt. suppleret med rifampicin 300 mg x 2 po eller ciprofloxacin 500 mg x 2 po
 - Alternativt som monoterapi moxifloxacin 400 mg x 1 po
 - Samlet behandlingslængde 14-21 dage

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Rhew DC, Tu GS, Ofman J et al. Early switch and early discharge strategies in patients with community-acquired pneumonia: a meta-analysis. Arch Intern Med 2001; 161: 722-27.

13 Udskriv, når passende

Quick info:

- Patienterne skal vurderes inden for 24 timer før planlagt udskrivelse til hjemmet
- Patienter, der overvejes udskrevet bør ikke have mere end én af følgende karakteristika (medmindre det repræsenterer habitualtilstanden):
 - Feber
 - Hjertefrekvens > 100/min
 - Respirationsfrekvens > 24/min
 - Systolisk blodtryk < 90 mmHg
 - SaO₂ < 90 %
 - Kan ikke opretholde passende føde- og væskeindtag
 - Abnorm mental status

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

16 Revurdér efter 6 uger

Quick info:

Alle patienter skal have foretaget en klinisk gennemgang ved 6. uge med henblik på:

- Symptomer
- Objektive kliniske fund
- Røntgenundersøgelse af thorax

Kontrolrøntgen af thorax:

- Foretages hos alle med lungeinfiltrat
- Kontrolleres efter 6 uger (enten i hospitalsambulatorium eller via egen læge)

Yderligere undersøgelser er påkrævet, hvis symptomerne persisterer, eller hvis der er synlige abnormiteter ved røntgen af thorax

- Overvej bronkoskopi
- Overvej differentialdiagnoser

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

17 Intensiv eller semi-intensiv behandling af respirationsinsufficiens

Quick info:

- Intensiv eller semiintensiv behandling af respirationsinsufficiens ligger uden for rammerne af denne gennemgang

18 Revurdér og foretag ændring af antibiotiske behandling

IMPORTANT NOTE

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Quick info:

- Kontrollér resultaterne af mikrobiologiske undersøgelser inkl. resistensforhold (blod-, ekspektorat- og urinalyser; PCR-analyser)
- Gennemgå røntgenundersøgelse af thorax (specielt pleuraeffusion, absces)

Overvej yderligere undersøgelser:

- Gentag røntgenundersøgelse af thorax
- Gentag evt. bloddyrkning
- Leukocytal, differentialtælling og CRP
- PCR på ekspektorat for atypisk pneumoni (legionella, chlamydia, mycoplasma)
- Legionella urinantigen (LUT) og pneumokokantigen i urin (PUT)
- Bronkoskopi (BAL eller bronkialt skyl) til dyrkning og resistens samt undersøgelse for tuberkulose (mikroskopi, D+R, PCR)

Overvej:

- Differentialdiagnoser fx hjertheinsufficiens, infektion med *Mycobacterium tuberculosis*, lungeemboli, lungeødem, lungecancer, bronkiektasi og interstitiel lungesygdom
- Komplikationer fx pleuraeffusion, empyem, lungeabsces, adult respiratory distress syndrome, metastatisk infektion og septikæmi
- Allergisk reaktion på antibiotika fx drug fever
- Komplians og dosis af antibiotika

Tilpas behandlingen. Overvej:

- Henvisning til lungemedicinsk/ infektionsmedicinsk vurdering med henblik på gennemgang af sygehistorie, undersøgelser og resultater
- Hvis organisme er identificeret ved ekspektorat (dyrkning og resistens), antigen test (LUT og PUT) eller PCR-analyser skift til relevante antibiotika
- Hvis ingen supplerende mikrobiologisk information, overvej at supplere med fluroquinolon og/eller rifampicin (rifampicin (600 mg 2 gange dagligt), hvis patienten allerede får betalactam eller clarithromycin) Husk at rifampicin ikke må bruges som monoterapi, da der er stor risiko for resistensudvikling

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Mills GD, Oehley MR, Arrol B. Effectiveness of beta lactam antibiotics compared with antibiotics active against atypical pathogens in non-severe community acquired pneumonia: meta-analysis. BMJ 2005; 330: 456.

21 Monitorér og vurder løbende

Quick info:

Monitorér mindst hver 6. - 12. time:

- Temperatur
- Puls
- Respirationsfrekvens
- Blodtryk
- Mental status
- Almentilstanden
- Ilt saturation og evt. arterieblodanalyse
- Diurese/ væskebalance

Ved mangelfuld respons kan suppleres med følgende undersøgelser:

- C-reaktivt protein (CRP) (falder hurtigt på vellykket behandling)
- Leukocytal og differentialtælling
- Ny røntgenundersøgelse af thorax

Giv ernæringsstøtte, hvis sygdommen er langvarig.

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

22 Overvej sekundær forebyggelse

Quick info:

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Influenzavaccine anbefales til højrisikogrupper, alle personer over 65 år samt personer med kronisk lungesygdom, hjertesygdom, nyresygdom, leversygdom, immunsuppression eller diabetes
- Pneumokokvaccine kan være effektiv i de ovennævnte grupper (over 65 år/ kronisk sygdom, splenektomi)
- Overvej tidlig opsporing af KOL:
 - Lungefunktionsundersøgelse ved rygere, exrygere over 35 år og risikoerhverv (se [KOL- anbefalinger for tidlig opsporing mv](#))
- Rådgiv om kost, rygning, alkohol og motion (KRAM)
- Giv tilbud om rygeafvænning, hvis relevant

Referencer:

KOL (kronisk obstruktiv lungelidelse) - anbefalinger for tidlig opsporing, opfølgning, behandling og rehabilitering. Sundhedsstyrelsen, 2006, www.sst.dk

Bekendtgørelse nr 723 af 13/06/2008 om gratis influenzavaccination til visse persongrupper

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

23 Overvej yderligere undersøgelse

Quick info:

Overvej:

- Bronkoskopi
- CT af thorax
- Tuberkulose- og HIV- vurdering

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

25 Respons inden for 48 timer

Quick info:

Adækvat respons bedømt ved:

- Feberresolution ($< 38^{\circ}$) > 8 timer
- Puls < 100
- Takypnø-, hypotensions-, hypoxirespons
- Forbedret leukocytal og fald i C-reaktivt protein (CRP)
- Ingen bakteræmi

Referencer

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

26 Afslut

Quick info:

Overvej at afslutte ambulant forløb

28 Overvej differentialdiagnoser og komplikationer

Quick info:

Komplikationer fx:

- Pleuraeffusion
- Empyem
- Lungeabsces
- Adult respiratory distress syndrome

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Metastatisk infektion og septikæmi

Differentialdiagnoser fx

- Hjertheinsufficiens
- Lungeemboli
- Lungeødem
- Lungecancer
- Bronkiektasi
- Interstitiel lungesygdom
- Eosinofil pneumoni
- Immunsuppression
- Alveolær blødningssyndrom fx kollagenoser
- Infektion med *Mycobacterium tuberculosis*

Reference:

- British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Svær pneumoni - behandling på sygehus

The pathway is consistent with the following quality-appraised guidelines (1,2,3,4,10). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Svær pneumoni - behandling i sekundærsektor

Evidence grade

U

Reference IDs

2, 4, 1, 23, 15, 16, 24, 25

Overflytning til intensiv behandling påkrævet?

1

2, 10, 1

Iltbehandling

1

2

Iværksæt antibiotikabehandling

1

2, 3, 5, 6, 7, 9, 14, 1, 23, 22, 21, 18

Monitorér og vurder løbende

1

2

Respons inden for 48 timer

U

21

Overvej skift til perorale antibiotika

1

2, 8, 21

Udskriv, når passende

U

1

Revurder efter 6 uger

1

2

Overflytning til intensivbehandling?

1

2, 10, 1

Overvej yderligere undersøgelse

1

2

Overvej differentialdiagnoser og komplikationer

1

2

Monitorér og vurder løbende

1

2

Revurder og foretag ændring af antibiotiske behandling

1

2, 6

Respons inden for 48 timer

U

21

Overvej sekundær forebyggelse

1

2, 5, 26, 27

References

This is a list of all the references that have passed critical appraisal for use in the pathway Pneumoni erhvervet uden for sygehus

ID Reference

- 1 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults (2004 update). London: BTS; 2004.

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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

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- 4 Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.
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- 10 Niederman MS, Mandell LA, Anzueto A et al. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med 2001; 163: 1730-1754.
http://www.ncbi.nlm.nih.gov/sites/entrez?db=pubmed&cmd=Retrieve&dopt=AbstractPlus&list_uids=11401897&query_hl=7&itool=pubmed_docsum
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- 17 Mundy LM, Leet TL, Darst K et al. Early mobilization of patients hospitalized with community-acquired pneumonia. Chest 2003; 124: 883-889.
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http://www.irf.dk/download/pdf/rf/2003/Nr_12%2095581ombr.pdf
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Svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

ID Reference

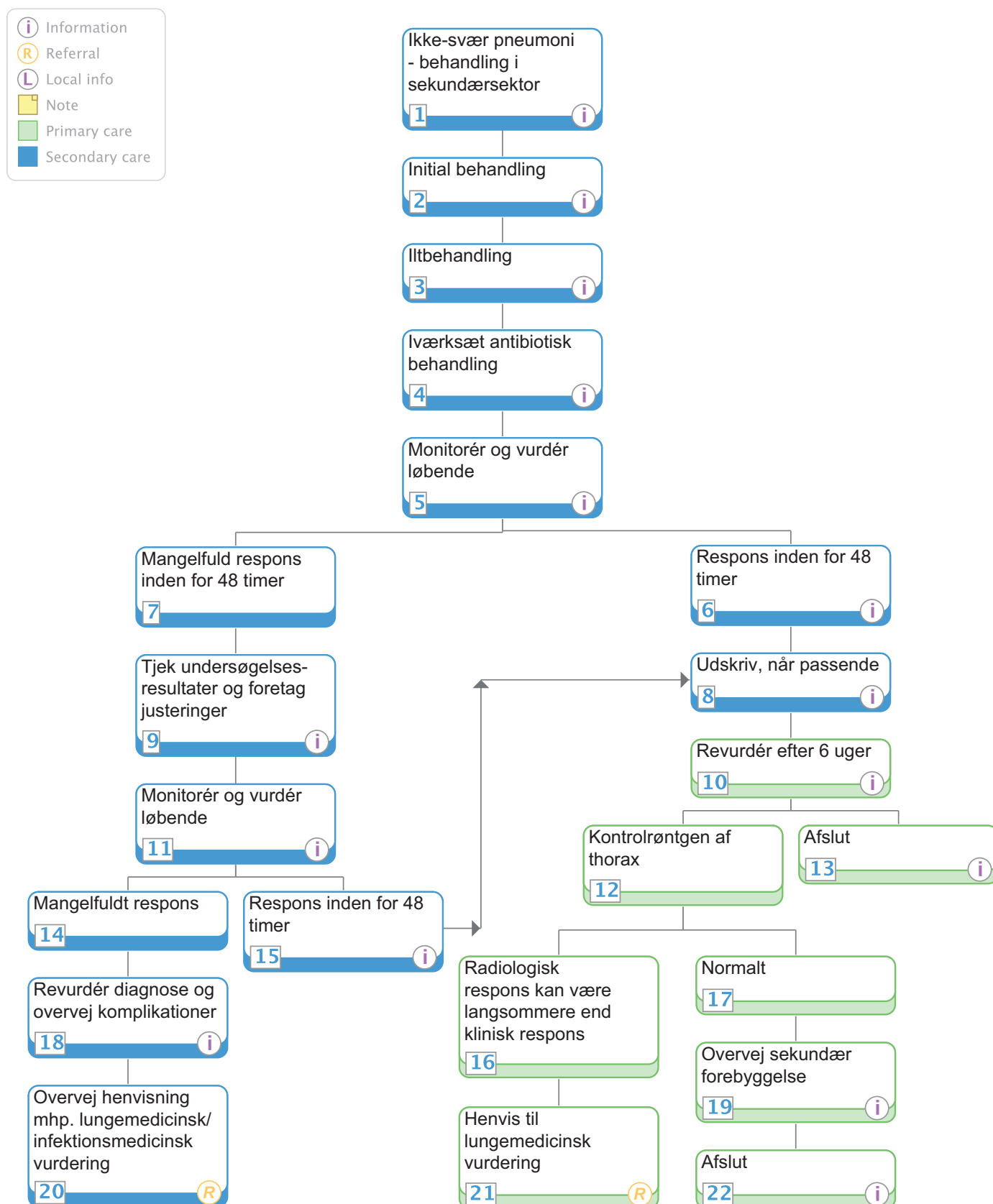
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www.sst.dk
- 27 Bekendtgørelse nr 723 af 13/06/2008 om gratis influenzavaccination til visse persongrupper. 2008.

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus



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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

1 Ikke-svær pneumoni - behandling i sekundærsektor

Quick info:

Pneumoni erhvervet udenfor sygehus (community acquired pneumonia, CAP)

- Denne skematiske gennemgang dækker diagnostik og vurdering af pneumoni erhvervet uden for sygehus
- Forløbet dækker ikke aspirationspneumoni, hospitalserhvervet (nosokomial) pneumoni (HAP) og pneumoni hos immuninkompetente
- Pneumoni er årsag til 4-7 indlæggelser per 1000 personer/år svarende til ca. 15.000 årlige indlæggelser
- Hertil kommer pneumoni, der behandles i primærsektoren, som udgør hovedparten af pneumonierne
 - Pneumoni udgør ca 1-2% af henvendelser i almen praksis
- Den samlede mortalitet ved pneumoni (indlagte og ikke-indlagte) er gennemsnitligt 2-3 %
- For indlagte patienter er mortaliteten ved pneumoni 6-14%
- Mortaliteten stratificeret ift CURB 65- risikovurderingsscoren:
 - 0-3% mortalitet ved CURB 65-score 0-1
 - 5-21% mortalitet ved CURB 65-score 2-3
 - 28-60% mortalitet ved CURB 65-score 4-5

Som oftest mistænkes diagnosen pneumoni ved nyopståede respiratoriske symptomer:

- Hoste
- Feber
- Ekspektorat
- Pleuritsmerter
- Nye lungestetoskopiske fund (krepitation, dæmpning og ophævet respiration)
- Diagnosen kan støttes af røntgenundersøgelse af thorax
- Mange mikroorganismer er blevet associeret med pneumoni erhvervet uden for sygehus, men hovedparten er forårsaget af *Streptococcus pneumoniae*

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Thomsen RW, Riis A, Nørgaard M, Jacobsen J, Christensen S, McDonald CJ, et al. Rising incidence and persistently high mortality of hospitalized pneumonia: a 10-year population-based study in Denmark. *Journal of internal medicine*. 2006 Apr;259(4):410.

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British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington (MN): ICSI; 2005.

Fine MJ, *JAMA* 1996; 275: 134-41

2 Initial behandling

Quick info:

Sikre:

- Væskeindtag
- Ernæring
- Mobilisering
- Overvej behov for lungefysioterapi
- Tilbud om rygeafvænning

Giv:

- Analgetika for pleuritsmerter fx paracetamol

Reference:

Mundy LM, Leet TL, Darst K, et al. Early mobilization of patients hospitalized with community-acquired pneumonia. *Chest* 2003; 124:883–889

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

3 Iltbehandling

Quick info:

- Ved ilt saturation < 92 %, foretages arterieblodanalyse (anfør ilt dosering)
- Dosér ilttilskud til ilt saturation $\text{SaO}_2 > 92\%$ eller $\text{PaO}_2 > 8 \text{ kPa}$
- Vær opmærksom på risiko for CO_2 -retention (hyperkapni):
 - Brug den lavest mulige iltkoncentration
 - Monitorér med arterieblodanalyse
- Indikationer for iltbehandling:
 - Arteriel $\text{PaO}_2 < 8 \text{ kPa}$
 - Systolisk blodtryk < 100 mmHg
 - Metabolisk acidose med hydrogencarbonat < 18 mmol/l
 - Respirationsfrekvens > 24/minut

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

4 Iværksæt antibiotisk behandling

Quick info:

- Opstart intravenøs antibiotisk behandling umiddelbart efter diagnosticering
- Behandlingen bør være iværksat hurtigst muligt, helst inden for 4 timer efter indlæggelse
- Empirisk behandling anbefales indtil der foreligger mikrobiologisk ætiologi
- Foretrukne førstevalgsbehandling ved ikke-svær pneumoni:
 - Penicillin 2 MIE x 4 iv
- Ved penicillinallergi:
 - Cefuroxim 1,5 g x 3 iv eller
 - Clarithromycin 500 mg x 2 iv eller
 - Moxifloxacin 400 mg x 1 po
- Revurder, hvis mikroorganisme og følsomhed foreligger

Hvis mikroorganismen er kendt, behandles efter resistensbestemmelse med smalles muligt antibiotika. Anbefalede behandling:

- *Streptococcus pneumoniae*:
 - Benzylpenicillin 2 MIE x 4 iv
 - Ved penicillinallergi cefuroxim 1,5 g x 3 iv
 - Ved penicillinanafylaksi clarithromycin 500 mg x 2 iv
- *Haemophilus influenzae*:
 - Pivampicillin 1 g x 4 iv
 - Ved penicillinallergi cefuroxim 1,5 g x 3 iv eller ciprofloxacin 500 mg x 2 po
- *Mycoplasma pneumoniae* og *Chlamydia pneumoniae*:
 - Clarithromycin 500 mg x 2 iv
- *Gram-negative enterobacteriaceae*:
 - Behandles efter resistenssvar
- *Staphylococcus aureus*:
 - Behandles efter resistenssvar
 - Dicloxacillin 1 g x 4 iv + fusidin 500 mg x 3 po eller
 - Cefuroxim 1,5 g x 3 + fusidin 500 mg x 3
- *Pseudomonas aeruginosa*:
 - Behandles efter resistenssvar
 - Oftest piperacillin/tazobactam 4 g x 3 + gentamycin /toframycin eller
 - Piperacillin/tazobactam 4 g x 3 + ciprofloxacin 500 mg x 2 po
- *Legionella*:
 - Ciprofloxacin 400 mg x 2 iv + rifampicin 300 mg x 2 po
 - Alternativt som monoterapi moxifloxacin 400 mg x 1 iv
- Overvej at give kortikosteroider, hvis stærk mistanke om *Pneumocystis jirovecii*-pneumoni og HIV

Referencer:

Retningslinjer for Pneumoni – initial undersøgelse og behandling. Dansk Lungemedicinsk Selskab, oktober 2008.
www.lungemedicin.dk

Pneumonibehandling. Rationel Farmakoterapi nr. 12/2003. <http://www.irf.dk>

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

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Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.

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Mills GD, Oehley mr, Arrol B. Antibiotic choice makes little difference in CAP. J Fam Pract 2005; 54: 494.

5 Monitorér og vurdér løbende

Quick info:

Monitorér mindst hver 6. - 12. time i de første 48 timer

- Temperatur
- Puls
- Respirationsfrekvens
- Blodtryk
- Mental status
- Almentilstanden
- Ilt saturation og evt. arterieblodanalyse
- Diurese og væskebalance

Ved mangelfuld respons kan suppleres med følgende undersøgelser:

- C-reaktivt protein (CRP) (falder hurtigt på vellykket behandling)
- Leukocytter og differentialetælling
- Ny røntgenundersøgelse af thorax

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS 2001.

6 Respons inden for 48 timer

Quick info:

Adækvat respons bedømt ved:

- Feberresolution ($< 38^{\circ}$) > 8 timer
- Puls < 100
- Takypnø-, hypotensions-, hypoxirespons
- Forbedret leukocytal og fald i C-reaktivt protein (CRP)
- Ingen bakteræmi

Ved intravenøs antibiotika overvej skift til peroral antibiotika. Valg af peroralt antibiotikum afhænger af i.v. behandling:

- Simpelt skift til tilsvarende perorale midler
- *Streptococcus pneumoniae*:
 - Penicillin 2 MIE x 4 po
 - Ved penicillinallergi: clarithromycin 500 mg x 2 po
 - Samlet behandlingslængde 7-10 dage
- *Haemophilus influenzae*:
 - Pivampicillin 700 mg x 3 po
 - Ved ampicillinresistens amoxicillin med clavulansyre 500 mg/125 mg x 3 po
 - Ved penicillinallergi ciprofloxacin 500 mg x 2 po
 - Samlet behandlingslængde 10-14 dage
- *Mycoplasma pneumoniae*
 - Roxithromycin 150 mg x 2 po

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Samlet behandlingslængde 14 dage
- *Chlamydia pneumoniae* :
 - Clarithromycin 500 mg x 2 po
 - Doxycyclin 200 mg po initialt, derpå 100 mg x 1 po
 - Samlet behandlingslængde 14-21 dage
- *Legionella* :
 - Roxithromycin 300 mg x 2 po (dobbeltdosis) evt. suppleret med rifampicin 300 mg x 2 po eller ciprofloxacin 500 mg x 2 po.
 - Alternativt som monoterapi moxifloxacin 400 mg x 1 po
 - Samlet behandlingslængde 14-21 dage

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

8 Udskriv, når passende

Quick info:

- Patienterne skal vurderes inden for 24 timer før planlagt udskrivelse til hjemmet
- Patienter, der overvejes udskrevet bør ikke have mere end én af følgende karakteristika (med mindre det repræsenterer habituatilstanden):
 - Feber
 - Hjerterefrekvens > 100/min
 - Respirationsfrekvens > 24/min
 - Systolisk blodtryk < 90 mmHg
 - SaO₂ < 90 %
 - Kan ikke opretholde passende føde- og væskeindtag
 - Abnorm mental status

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2004 Update.

9 Tjek undersøgelses-resultater og foretag justeringer

Quick info:

- Kontrollér resultaterne af mikrobiologiske undersøgelser inkl. resistensforhold (blod-, ekspektorat- og urinalyser; PCR-analyser)
- Gennemgå røntgenundersøgelse af thorax (specielt pleuraeffusion, absces)

Overvej yderligere undersøgelser:

- Gentag røntgenundersøgelse af thorax
- Gentag evt. bloddyrkning
- Leukocyttal, differentialtælling og CRP
- PCR på ekspektorat for atypisk pneumoni (legionella, chlamydia, mycoplasma)
- Legionella urinantigen (LUT) og pneumokokantigen i urin (PUT)

Hvis mikroorganismen er identificeret ved ekspektorat (dyrkning og resistens), antigen test (LUT og PUT) eller PCR-analyser skift til relevante antibiotika.

10 Revurdér efter 6 uger

Quick info:

Alle patienter skal have foretaget en klinisk gennemgang ved 6. uge med henblik på:

- Symptomer
- Objektive kliniske fund
- Røntgenundersøgelse af thorax

Kontrolrøntgen af thorax:

- Foretages hos alle med lungeinfiltrat
- Kontrolleres efter 6 uger (enten i hospitalsambulatorium eller via egen læge)

Yderligere undersøgelser er påkrævet, hvis symptomerne persisterer, eller hvis der er synlige abnormiteter ved røntgen af thorax

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Overvej bronkoskopi
- Overvej differentialdiagnoser

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

11 Monitorér og vurder løbende

Quick info:

Monitorér mindst hver 6. - 12. time

- Temperatur
- Puls
- Respirationsfrekvens
- Blodtryk
- Mental status
- Almentilstanden
- Iltsaturation og evt. arterieblodanalyse
- Diurese og væskebalance

Ved mangelfuld respons kan suppleres med følgende undersøgelser:

- C-reaktivt protein (CRP) (falder hurtigt på vellykket behandling)
- Leukocyttal og differentieltælling
- Ny røntgenundersøgelse af thorax

Reference:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS 2001.

13 Afslut

Quick info:

Kontrolforløbet kan afsluttes

15 Respons inden for 48 timer

Quick info:

Adækvat respons bedømt ved:

- Feberresolution ($< 38^{\circ}$) > 8 timer
- Puls < 100
- Takypnø-, hypotensions-, hypoxirespons
- Forbedret leukocyttal og fald i C-reaktivt protein (CRP)
- Ingen bakteræmi

Ved intravenøs antibiotika overvej skift til peroral antibiotika. Valg af peroralt antibiotikum afhænger af i.v. behandling:

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- *Streptococcus pneumoniae*:
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 - Ved penicillinallergi: clarithromycin 500 mg x 2 po
 - Samlet behandlingstid 7-10 dage
- *Haemophilus influenzae*:
 - Pivampicillin 700 mg x 3 po
 - Ved ampicillinresistens amoxicillin med clavulansyre 500 mg/125 mg x 3 po
 - Ved penicillinallergi ciprofloxacin 500 mg x 2 po
 - Samlet behandlingstid 10-14 dage
- *Mycoplasma pneumoniae*
 - Roxithromycin 150 mg x 2 po
 - Samlet behandlingstid 14 dage
- *Chlamydia pneumoniae* :
 - Clarithromycin 500 mg x 2 po
 - Doxycyclin 200 mg po initialt, derpå 100 mg x 1 po

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

- Samlet behandlingslængde 14-21 dage
- *Legionella* :
 - Roxithromycin 300 mg x 2 po (dobbeltdosis) evt. suppleret med rifampicin 300 mg x 2 po eller ciprofloxacin 500 mg x 2 po.
 - Alternativt som monoterapi moxifloxacin 400 mg x 1 po
 - Samlet behandlingslængde 14-21 dage

Referencer:

Andersen LV, Brock B, Jakobsen P, Nielsen LP. Samfundserhvervet pneumoni – behandling. Statusartikel. Ugeskr Læger 2008;170(3):127

18 Revurdér diagnose og overvej komplikationer

Quick info:

- Kontrollér resultaterne af mikrobiologiske undersøgelser inkl. resistensforhold (blod-, ekspektorat- og urinalyser; PCR-analyser)
- Gennemgå røntgenundersøgelse af thorax (specielt pleuraeffusion, absces)

Overvej yderligere undersøgelser:

- Gentag røntgenundersøgelse af thorax
- Gentag evt. bloddyrkning
- Leukocytaltal, differentialtælling og CRP
- PCR på ekspektorat for atypisk pneumoni (legionella, chlamydia, mycoplasma)
- Legionella urinantigen (LUT) og pneumokokantigen i urin (PUT)
- Bronkoskopi (BAL eller bronkialt skyl) til dyrkning og resistens samt undersøgelse for tuberkulose (mikroskopi, D+R, PCR)

Overvej:

- Differentialdiagnoser fx hjertheinsufficiens, infektion med *Mycobacterium tuberculosis*, lungeemboli, lungeødem, lungecancer, bronkiektasi og interstitiel lungesygdom
- Komplikationer fx pleuraeffusion, empyem, lungeabsces, adult respiratory distress syndrome, metastatisk infektion og septikæmi
- Allergisk reaktion på antibiotika fx drug fever
- Komplians og dosis af antibiotika

Tilpas behandlingen. Overvej:

- Henvi til lungemedicinsk/ infektionsmedicinsk vurdering med henblik på gennemgang af sygehistorie, undersøgelser og resultater
- Hvis organisme er identificeret ved ekspektorat (dyrkning og resistens), antigen test (LUT og PUT) eller PCR-analyser skift til relevante antibiotika
- Hvis ingen supplerende mikrobiologisk information, overvej at supplere med fluroquinolon og/eller rifampicin (rifampicin (600 mg 2 gange dagligt), hvis patienten allerede får betalactam eller clarithromycin)

Referencer:

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Mills GD, Oehley MR, Arrol B. Effectiveness of beta lactam antibiotics compared with antibiotics active against atypical pathogens in non-severe community acquired pneumonia: meta-analysis. BMJ 2005; 330: 456.

19 Overvej sekundær forebyggelse

Quick info:

- Influenzavaccine anbefales til højrisikogrupper, alle personer over 65 år samt personer med kronisk lungesygdom, hjertesygdom, nyresygdom, leversygdom, immunsuppression eller diabetes
- Pneumokokvaccine kan være effektiv i de ovennævnte grupper (over 65 år/ kronisk sygdom, splenektomi)
- Overvej tidlig opsporing af KOL:
 - Lungefunktionsundersøgelse ved rygere, exrygere over 35 år og risikoerhverv (se [KOL- anbefalinger for tidlig opsporing mv](#))
- Rådgiv om kost, rygning, alkohol og motion (KRAM)
- Giv tilbud om rygeafvænning, hvis relevant

Referencer:

KOL (kronisk obstruktiv lungelidelse) - anbefalinger for tidlig opsporing, opfølgning, behandling og rehabilitering. Sundhedsstyrelsen, 2006, www.sst.dk

Bekendtgørelse nr 723 af 13/06/2008 om gratis influenzavaccination til visse persongrupper

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.

Loeb M. Community acquired pneumonia. Clin Evid 2005; 1862-75.

22 Afslut

Quick info:

Kontrolforløb kan afsluttes

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Ikke-svær pneumoni - behandling på sygehus

The pathway is consistent with the following quality-appraised guidelines (1,2,3,4,10). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Graded node titles that appear on this page	Evidence grade	Reference IDs
Revurdér diagnose og overvej komplikationer	1	2, 6
Respons inden for 48 timer	1	21
Udskriv, når passende	1	1
Revurdér efter 6 uger	1	2
Overvej sekundær forebyggelse	1	2, 5, 26, 27
Monitorér og vurdér løbende	1	2
Iværksæt antibiotisk behandling	1	2, 3, 5, 6, 7, 9, 1, 23, 22, 21
Iltbehandling	1	2
Initial behandling	1	2, 17
Ikke-svær pneumoni - behandling i sekundærsektor	U	2, 4, 1, 23, 15, 16, 24, 25
Respons inden for 48 timer	U	21

References

This is a list of all the references that have passed critical appraisal for use in the pathway Pneumoni erhvervet uden for sygehus

ID Reference

- 1 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults (2004 update). London: BTS; 2004.
<http://www.brit-thoracic.org.uk/Portals/0/Clinical%20Information/Pneumonia/Guidelines/MACAPrevisedApr04.pdf>
- 2 British Thoracic Society (BTS). BTS guidelines for the management of community acquired pneumonia in adults. London: BTS; 2001.
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- 3 Scottish Intercollegiate Guidelines Network (SIGN). Community management of lower respiratory tract infection in adults. A national clinical guideline. SIGN publication no. 59. Edinburgh: SIGN; 2002.
- 4 Institute for Clinical Systems Improvement (ICSI). Community-acquired pneumonia in adults. Bloomington, MN: ICSI; 2005.

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Ikke-svær pneumoni - behandling på sygehus

Medicine > Thoracic medicine > Pneumoni erhvervet uden for sygehus

ID Reference

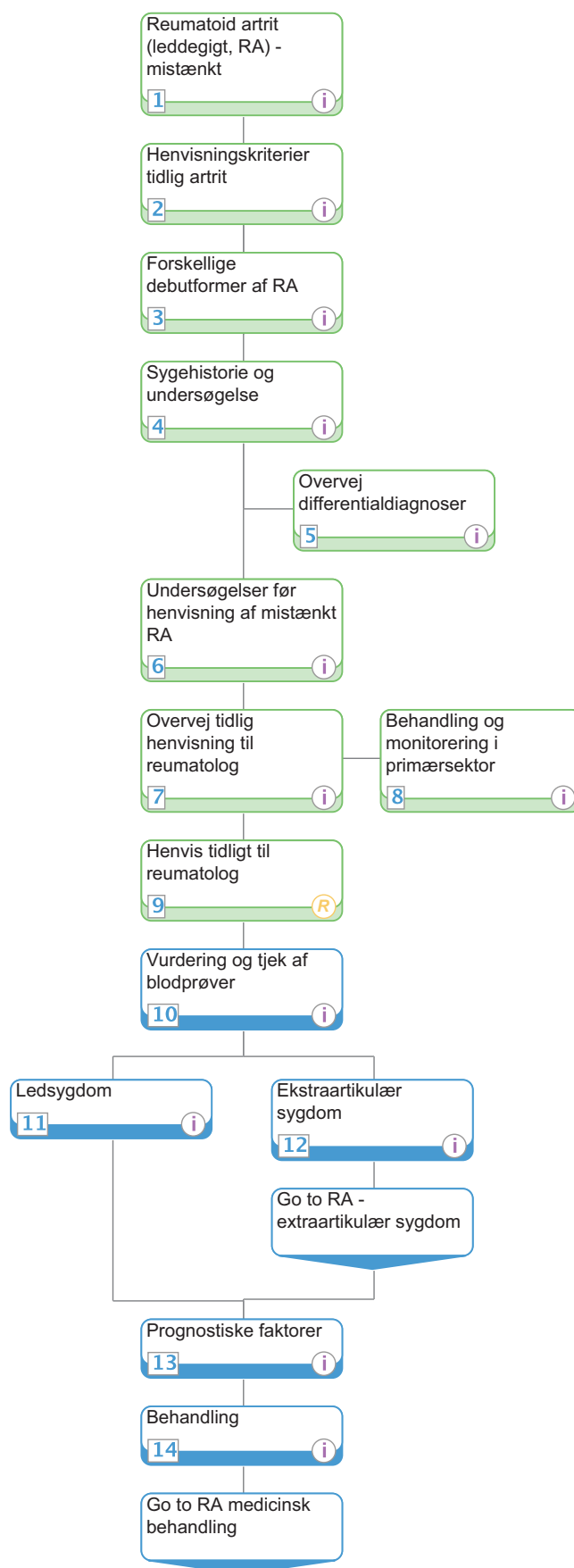
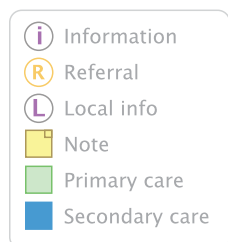
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- 9 Antibiotic choice makes little difference in CAP. J Fam Pract 2005; 54: 494.
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- 14 Briel M, Bucher HC, Boscacci R et al. Adjunctive corticosteroids for Pneumocystis jiroveci pneumonia in patients with HIV-infection. Cochrane Database Syst Rev 2006; CD006150.
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- 18 Viberg A, Cars O, Karlsson MO et al. Estimation of Cefuroxime Dosage Using Pharmacodynamic Targets, MIC Distributions, and Minimizations of Risk Funktion. 2008; 48: 1270. The Journal of Clinical Pharmacology 2008; 48: 1270.
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www.sst.dk
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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)



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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

1 Reumatoid artrit (leddegigt, RA) - mistænkt

Quick info:

Den skematiske gennemgang af reumatoid artrit (RA) inkluderer:

- Diagnostik og behandling af reumatoid artrit (RA) hos voksne, herunder karakteristika for ekstraartikulære manifestationer og hvordan methotrexat anvendes sikkert.

Definition:

- RA er en kronisk, progredierende tilstand karakteriseret ved inflammation i synovialled, smerter og hævelse, som medfører funktionsnedsættelse.
- Årsag til RA er ukendt, sandsynligvis multifaktoriel.

Prævalens:

- RA rammer ca. 0,7 % af populationen i Danmark
- Prævalensen i DK er estimeret til 35.000 voksne (over 16 år)
- Det er overvejende kvinder, der har sygdommen. Køns-ratio: 3:1

Symptomerne omfatter:

- Smerter
- Stivhed
- Hævelse af led
- Systemiske influenzalignende symptomer

Prognose:

- Leddegigt er en alvorlig kronisk sygdom, præget af smertefulde ledhævelser og fremadskridende ødelæggelse af led samt almen sygdomsfølelse
- En høj procentdel får ledske, organskade, nedsat funktionsniveau og mister tilknytning til arbejdsmarkedet
- Leddegigt er fundet at medføre en 8-10 år lavere middellevetid end befolkningen som helhed

Referencer:

Sundhedsstyrelsen, Center for Evaluering og Medicinsk Teknologivurdering. Leddegigt – medicinsk teknologivurdering af diagnostik og behandling. Medicinsk Teknologivurdering 2002; 4(2).

Hansen TM, Early diagnosis and treatment of rheumatoid arthritis [Article in Danish], Ugeskr Laeger. 2005 Nov 21;167(47):4441.

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Combe B. Progression in early rheumatoid arthritis. Best Practice & Research Clinical Rheumatology. Volume 23, Issue 1, February 2009, Pages 59-69

2 Henvisningskriterier tidlig artrit

Quick info:

Tidlig artrit:

- Persisterende ikke-traumatisk ledhævelse i mere end et led
 - Bør henvises til og ideelt ses af speciallæge i reumatologi inden for 6 uger fra debut af symptomer
 - Røntgensvar bør ikke afventes
- Mistanken styrkes, hvis der er:
 - Morgenstivhed af mere end 30 minutters varighed
 - Involvering af MCP eller MTP led (metakarpofalangeal- eller metatarsofalangeal)
 - Positiv familieanamnese
 - Ved styrket mistanke henvises tidligere
- Tidlig diagnostik og behandling af RA forbedrer prognosen i forhold til omfanget af ledske, funktionsniveau og tilknytning til arbejdsmarkedet

Referencer:

Combe B. Progression in early rheumatoid arthritis. Best Practice & Research Clinical Rheumatology. Volume 23, Issue 1, February 2009, Pages 59-69

Sundhedsstyrelsen, Center for Evaluering og Medicinsk Teknologivurdering. Leddegigt – medicinsk teknologivurdering af diagnostik og behandling. Medicinsk Teknologivurdering 2002; 4(2).

Hansen TM, Early diagnosis and treatment of rheumatoid arthritis [Article in Danish], Ugeskr Laeger. 2005 Nov 21;167(47):4441.

3 Forskellige debutformer af RA

Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

Quick info:

Snigende debut

- Forekommer hos 70 %
- Debut i løbet af uger eller måneder
- Progression fra fortrinsvis perifer småledssygdom til mere proximale store led

Andre debutformer:

Akutdebut

- Forekommer hos 10 %
- Pludselig symmetrisk polyartrit

Systemisk debut

- Især hos personer over 60 år
- Symptomerne omfatter: feber, myalgi, vægttab, anæmi, pleuraeffusion og sklerit
- Ledpatologi kan være minimal
- Reumafaktor påvises i reglen
- Udeluk bindevævssygdom, malignitet eller infektion

Polymyalgisk debut

- Proximal myalgi kan gå forud for debut af en åbenlys artrit
- Reumafaktor kan være negativ, specielt hos ældre
- Udeluk bindevævssygdom, malignitet eller infektion, herunder polymyalgia rheumatica

Mono- og oligoartikulær debut

- Mono- eller oligoartrit
- Overvej differentialdiagnoser fx infektion (septisk artrit), psoriasisartrit, reaktiv artrit, artrit urica og anden krystalartrit, enteropatisk artrit, degenerativ ledsygdom, traume, recidiverende hydartrose

Palindromisk (tilbagevendende) artrit

- Forekommer hos 20 %
- Gentagen selvbegrænsende synovitis
- Udvikles over timer og svinder inden for nogle dage
- Symptomfrit interval
- Kan progrediøre til RA specielt hos personer med positiv reumafaktor og/eller positiv anti-CCP
- Antallet af afficerede led er lille, men stiger i reglen med tiden

Referencer:

Sundhedsstyrelsen, Center for Evaluering og Medicinsk Teknologivurdering. Leddegigt – medicinsk teknologivurdering af diagnostik og behandling. Medicinsk Teknologivurdering 2002; 4(2).

4 Sygehistorie og undersøgelse

Quick info:

- Tidlig diagnostik og behandling af RA forbedrer prognosen i forhold til omfanget af ledsader, funktionsniveau og tilknytning til arbejdsmarkedet

Der findes ikke en specifik diagnostisk test for reumatoid artrit. Diagnostiske kriterier for Reumatoid artrit (ACR-listekriterier, 1987):

- Mindst 4 kriterier af de 7 kriterier skal være opfyldt og de *-mærkede tilstede i mindst 6 uger samtidigt:
 - Morgenstivhed i og omkring leddene i mindst 1 time*
 - Hævelse af mindst 3 led i specifikke ledregioner*
 - Hævelse af hånd- eller fingerled
 - Symmetrisk ledhævelse
 - Reumatiske noduli (gigtknuder) i huden
 - Forhøjelse af IgM-reumafaktor i blodet (IgM-RF) - OBS anti-CCP bruges i stigende omfang i stedet for/sammen med reumafaktor grundet højere specificitet
 - Typiske røntgenforandringer i leddene (erosioner)
- Diagnosen RA skal stilles så tidligt som muligt

Referencer:

The European League Against Rheumatism (EULAR). <http://www.eular.org/>

American College of Rheumatology (ACR). <http://www.rheumatology.org/>

Sundhedsstyrelsen, Center for Evaluering og Medicinsk Teknologivurdering. Leddegigt – medicinsk teknologivurdering af diagnostik og behandling. Medicinsk Teknologivurdering 2002; 4(2).

Primary Care Rheumatology Society. A framework for managing rheumatoid arthritis. Northallerton: Primary Care Rheumatology Society; 2001.

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

PRODIGY. Rheumatoid arthritis. Newcastle upon Tyne: PRODIGY; 2002.

Spanish Society of Rheumatology. Clinical practice guideline for the management of rheumatoid arthritis. Madrid: Spanish Society of Rheumatology; 2001.

Luqmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

5 Overvej differentialdiagnoser

Quick info:

Differentialdiagnoserne omfatter:

- Infektionsrelateret artrit
 - Septisk artrit herunder tuberkulose
 - Reaktiv artrit/postinfektøs artrit
 - Viral artrit (parvovirus, rubella, hepatitis B)
 - Borreliaartrit
- Bindevævssygdom
 - Systemisk lupus erythematosus
 - Sklerodermi
- Polymyalgia rheumatica – specielt hos ældre mennesker
- Spondyloartropati fx
 - Psoriasisartrit
 - Ankyloserende spondylit
 - Artrit ved inflammatorisk tarmsygdom
- Polyartikulær krystalartrit (fx arthritis urica)
- Fingerledsartrose indikeres af involvering af:
 - Proximale og distale interfalangealled og tommelfingers rodled
 - Heberdens eller Bouchards knuder
- Kronisk smertesyndrom (fx fibromyalgi)
- Artrit ved intern medicinske lidelser (fx hæmokromatose, sarkoidose, tyreotoxicose mv)

Reference:

PRODIGY. Rheumatoid arthritis. Newcastle upon Tyne: PRODIGY; 2002.

6 Undersøgelser før henvisning af mistænkt RA

Quick info:

Parakliniske undersøgelser før henvisning af tidlig artrit eller mistænkt RA omfatter:

- Fuldstændigt blodbillede: hæmoglobin, leukocytter, trombocytter, differentialtælling, MCV
- Kreatinin, natrium, kalium, albumin, ioniseret kalcium,
- Alanin-aminotransferase (ALAT), basisk fosfatase, bilirubin
- C-reaktivt protein (CRP)
- Sænkingsreaktion (ESR)
- Reumafaktor (IgM)
- Anti-CCP
- Urinstix for blod, albumin, leukocytter, glukose
- TSH
- Antinukleært antistof (ANA)
- Evt. 25-OH-D-vitamin
- Lipidstatus (kolesterol, LDL, HDL, triglycerider)
- BT, EKG

Referencer:

Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

PRODIGY. Rheumatoid arthritis. Newcastle upon Tyne: PRODIGY; 2002.

Spanish Society of Rheumatology. Clinical practice guideline for the management of rheumatoid arthritis. Madrid: Spanish Society of Rheumatology; 2001.

Luqmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

7 Overvej tidlig henvisning til reumatolog

Quick info:

- Diagnosen RA skal stilles så tidligt som muligt
- Tidlig diagnostik og behandling af RA forbedrer prognosen i forhold til omfanget af ledsader, funktionsniveau og tilknytning til arbejdsmarkedet
- På henvisningen anføres:
 - Hvilke og antal hævede led, herunder varighed og symmetri
 - Beskrivelse af objektive forandringer ved ledhævelsen
 - Morgenstivhed inkl varighed
 - Blodprøvesvar (særligt inflammationsparametre)
 - Opdateret medicinliste
 - Effekt af evt. given behandling

Referencer:

The European League Against Rheumatism (EULAR). <http://www.eular.org/>

American College of Rheumatology (ACR). <http://www.rheumatology.org/>

Lard LR, Visser H, Speyer I, vander Horst-Bruinsma IE, Zwinderman AH, Breedveld FC, et al. Early versus delayed treatment in patients with recent-onset rheumatoid arthritis: Comparison of two cohorts who received different treatment strategies. *Am J Med.* 2001;111:446-51.

British Society for Rheumatology (BSR). BSR guideline on standards of care for persons with rheumatoid arthritis. London: BSR; 2004.

Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

PRODIGY. Rheumatoid arthritis. Newcastle upon Tyne: PRODIGY; 2002.

8 Behandling og monitorering i primærsektor

Quick info:

Behandling og monitorering i primærsektor

- Indtil vurdering ved speciallæge i reumatologi
 - Behandling med paracetamol og NSAID indtil vurdering ved speciallæge i reumatologi
 - Glukokortikoid bør såvidt muligt undgås
- Monitorering af farmakologisk behandling herunder DMARD behandling
 - Ud over monitorering der ikke varetages af speciallæge i reumatologi
 - Se i øvrigt "[RA medicinsk behandling](#)"
- En reumatoid artrit patient med fast dagligt forbrug af NSAID bør betragtes som underbehandlet

Referencer:

The European League Against Rheumatism (EULAR). <http://www.eular.org/>American College of Rheumatology (ACR). <http://www.rheumatology.org/>

British Society for Rheumatology (BSR). BSR guideline on standards of care for persons with rheumatoid arthritis. London: BSR; 2004.

10 Vurdering og tjek af blodprøver

Quick info:

Vurdering af blodprøver samt evt. yderligere blodprøver:

- Fuldstændigt blodbillede (FBC): hæmoglobin, leukocytter, trombocytter, MCV (middel celle volumen)
- Kreatinin, natrium, kalium, albumin, ioniseret kalcium,
- Alanin-aminotransferase (ALAT), basisk fosfatase, bilirubin
- C-reaktivt protein (CRP)
- Sænkingsreaktion (ESR)
- Reumafaktor (IgM)
- Anti-CCP
- Urinstix for blod, albumin, leukocytter, glukose
- TSH
- Antinukleært antistof (ANA)
- Evt. 25-OH-D-vitamin

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

- Lipidstatus (kolesterol, LDL, HDL, triglycerider)
- BT og EKG

Evt. supplerende hos reumatologisk speciallæge - afhængigt af klinisk billede:

- Komplement (C3, C4, C3d)
- Evt. antineutrofil cytoplasmatiske antistof (ANCA)
- Anti-DNA
- Serum-Ig-niveauer

Røntgenundersøgelser:

- Røntgenundersøgelse af hænder, fødder og fodled
- Røntgenundersøgelse af halshvirvelsøjlen og thorax, hvis indiceret
- Evt. MR/ultralyd

Billedfremstilling af leddene

- Skal foretages så tidligt som muligt
- Gentages måned 6, 12, 18 og 24 fra symptomdebut
- Derefter billedfremstilling af leddene efter behov

Karakteristika for røntgenundersøgelse ved RA:

- Bløddelshævelse
- Jukstaartikulær osteoporose
- Afsmalnet ledspalte forårsaget af erosion af ledbrusk
- Knogleerosion
- Leddeformiteter

NB: røntgenundersøgelser kan være normale ved tidlig RA.

Ultralydsundersøgelse og MR-scanning (MRI):

- Kan visualisere tidlig synovitis og erosioner, som ikke påvises ved klinisk undersøgelse og røntgenundersøgelse

Referencer:

British Society for Rheumatology (BSR). BSR guideline on standards of care for persons with rheumatoid arthritis. London: BSR; 2004.

Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

Spanish Society of Rheumatology. Clinical practice guideline for the management of rheumatoid arthritis. Madrid: Spanish Society of Rheumatology; 2001.

Lugmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

11 Ledsygdom

Quick info:

Vurdering af ledsygdom omfatter:

- Patientens symptomer på ledsygdom (se [DANBIO](#))
 - Grad af ledsmerter (VAS, Visual Analog Skema)
 - Varighed af ledsmerter
 - Varighed af morgenstivhed (minutter)
 - Sværhedsgrad af træthed (VAS)
 - Patientens samlede vurdering af sygdomsvurdering (Global Assessment)
 - Begrænsning af funktion og almindelig dagligdags livsførelse (HAQ, Health Assessment Questionnaire)
 - Behov for hjælpemidler
- Objektive ledundersøgelse
 - Proximale og distale ekstremitetsled (mindst 40-ledsskema)
 - Ømhed
 - Hævelse
 - Ledbevægelighed (kontraktur, instabilitet)
 - Fejlstilling

Referencer:

Hetland ML, Unkerskov J, Ravn T, Friis M, Tarp U, Andersen LS, et al. Routine database registration of biological therapy increases the reporting of adverse events twentyfold in clinical practice. first results from the danish database (DANBIO). Scand J Rheumatol. 2005;34:40-4

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

12 Ekstraartikulær sygdom

Quick info:

Vurdér forekomst af ekstraartikulære manifestationer

- Almen symptomer
- Osteopeni/osteoporose
- Sekundær Sjøgrens syndrom
- Muskler, sener og bursae
- Reumatoide noduli
- Reumatoid lungesygdom
- Reumatoid vaskulit
- Reumatologisk hjertesygdom
- Oftalmologiske (fraset Sjøgren)
- Neurologiske
- Leverpåvirkning
- Renale
- Hæmatologiske
- Feltys syndrom

Derudover:

- Komorbiditet og associerede sygdomme

Henvi til relevante afdelinger, når indiceret. Se under [Reumatoid artrit - ekstraartikulær sygdom](#)

Reference:

Luqmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

13 Prognostiske faktorer

Quick info:

Faktorer, som indikerer en dårlig prognose:

- Tidlig debutalder
- Rygning
- Kvinde
- Høj alder
- Lavt uddannelsesniveau
- Højt sygdomsaktivitet ved debut - højt antal hævede led
- Tidlig erosiv sygdom (indenfor 2 år fra debut)
- Høj reumafaktortiter/ anti-CCP
- Vævstype HLD-DR4
- Forhøjet sænkingsreaktion (SR)
- Ekstraartikulær sygdom:
 - Perikardit
 - Systemisk vaskulit
 - Feltys syndrom

Referencer:

Hansen TM, Early diagnosis and treatment of rheumatoid arthritis [Article in Danish], Ugeskr Laeger. 2005 Nov 21;167(47):4441.

Combe B. Progression in early rheumatoid arthritis. Best Practice & Research Clinical Rheumatology. Volume 23, Issue 1, February 2009, Pages 59-69

American College of Rheumatology (ACR). <http://www.rheumatology.org/>

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Royal College of Nursing. Assessing, managing and monitoring biologic therapies for inflammatory arthritis: guidance for rheumatology practitioners. London: Royal College of Nursing; 2003.

Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

14 Behandling

Quick info:

Behandlingen af reumatoid artrit (RA) er multidisciplinær, afhænger af sygdommens sværhedsgrad, og om sygdommen er aktiv eller inaktiv og omfatter:

- Farmakologisk behandling
- Fysioterapi/ergoterapi
- Patientuddannelse/gigtskole og interventioner, der sigter mod mestring af sygdom
- Behandling af risikofaktorer for hjertekarsygdomme (kolesterol, BT, EKG)
- Kirurgiske interventioner, om nødvendigt

Behandling sigter mod at:

- Kontrollere inflammation
- Kontrollere ledsmerter
- Reducere og forebygge beskadigelse af led
- Forebygge funktionsnedsættelse
- Forbedre livskvalitet
- Træne patienterne i mestring af sygdom

RA kræver multidisciplinær behandling, ideelt set omfattende:

- Alment praktiserende læge
- Reumatologisk speciallæge
- Reumatologisk specialsygeplejerske
- Fysioterapeut
- Ergoterapeut
- Ortopædkirurgisk speciallæge
- Socialrådgiver
- Psykolog
- Bandagist
- Fodterapeut
- Diætist

Referencer:

Patientuddannelsesprogrammet "LÆR AT LEVE med kronisk sygdom". http://www.sst.dk/publ/publ2005/cff/GUIDE_KRSYGD/GUIDE_87767652017_NOV05.PDF

Lorig K, Ritter P, Stewart AL, Sobel DS, Brown BW, Bandura A et al. Chronic Disease Self-Management Program: 2-Year Health Status and Health Care Utilization Outcomes. *Med Care* 2001; 39:1217-23.

Lorig K, Feigenbaum P, Regan C, Ung E, Holman HR. A Comparison of Lay-Taught and Professional-Taught Arthritis Self-Management Courses. *The Journal of Rheumatology*, 13(4):763-767, 1986.

Primary Care Rheumatology Society. A framework for managing rheumatoid arthritis. Northallerton: Primary Care Rheumatology Society; 2001.

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National Institute for Health and Clinical Excellence (NICE). Guidance on the use of etanercept and infliximab for the treatment of rheumatoid arthritis. London: NICE; 2005.

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Ottawa Panel. Ottawa Panel evidence-based clinical practice guidelines for electrotherapy and thermotherapy interventions in the management of rheumatoid arthritis in adults. Ottawa: Ottawa Panel; 2004.

Brosseau LU, Pelland LU, Casimiro LY et al. Electrical stimulation for the treatment of rheumatoid arthritis. *Cochrane Database Syst Rev* 2002; CD003687.

Egan M, Brosseau L, Farmer M et al. Splints/orthoses in the treatment of rheumatoid arthritis. *Cochrane Database Syst Rev* 2003; CD004018.

Emery P, Suarez-Almazor M. Rheumatoid arthritis. *Clin Evid* 2003; 1349-71.

Little C, Parsons T. Herbal therapy for treating rheumatoid arthritis. *Cochrane Database Syst Rev* 2001; CD002948.

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

Riemsma RP, Kirwan JR, Taal E et al. Patient education for adults with rheumatoid arthritis. Cochrane Database Syst Rev 2003; CD003688.

Steultjens EM, Dekker J, Bouter LM et al. Occupational therapy for rheumatoid arthritis. Cochrane Database Syst Rev 2004; CD003114.

Van den Ende CH, Vliet Vlieland TP, Munneke M et al. Dynamic exercise therapy for rheumatoid arthritis. Cochrane Database Syst Rev 2000; CD000322.

Luqmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Reumatoid artrit (leddegigt) - mistænkt

The pathway is consistent with the following quality-appraised guidelines (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

This pathway was updated based on NICE guidance (4, 43) in February 2008.

Search date: Apr-2009

Evidence grades:

-  Intervention node supported by level 1 guidelines or systematic reviews
-  Intervention node supported by level 2 guidelines
-  Intervention node based on expert clinical opinion
-  Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Reumatoid artrit (leddegigt, RA) - mistænkt

Forskellige debutformer af RA

Henvisningskriterier tidlig artrit

Sygehistorie og undersøgelse

Undersøgelser før henvisning af mistænkt RA

Overvej tidlig henvisning til reumatolog

Vurdering og tjek af blodprøver

Ledsygdom

Ekstraartikulær sygdom

Prognostiske faktorer

Overvej differentialdiagnoser

Behandling

Behandling og monitorering i primærsektor

Evidence grade



























Reference IDs

51, 52, 48, 53

51

53, 51, 52

1, 6, 8, 11, 44, 54, 55, 51

6, 8, 11, 44

3, 6, 8, 54, 55, 49

3, 6, 11, 44

50

44

1, 2, 6, 11, 51, 52, 55, 53

8

1, 2, 3, 4, 6, 7, 11, 13, 17, 21, 22, 27, 30, 32, 38, 44, 45, 46, 47

54, 3

References

This is a list of all the references that have passed critical appraisal for use in the pathway Reumatoid artrit (leddegigt)

ID Reference

- 1 Primary Care Rheumatology Society. A framework for managing rheumatoid arthritis. Northallerton: Primary Care Rheumatology Society; 2001.
- 2 Royal College of Nursing (RCN). Assessing, managing and monitoring biologic therapies for inflammatory arthritis: guidance for rheumatology practitioners. London: RCN; 2003.
http://www.rcn.org.uk/_data/assets/pdf_file/0004/78565/001984.pdf

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

ID Reference

- 3 British Society for Rheumatology (BSR). BSR guideline on standards of care for persons with rheumatoid arthritis. London: BSR; 2004.
<http://rheumatology.oxfordjournals.org/cgi/reprint/44/4/553>
- 4 National Institute for Health and Clinical Excellence (NICE). Adalimumab, etanercept and infliximab for the treatment of rheumatoid arthritis. Technology appraisal guidance 130. London: NICE; 2007.
<http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11867>
- 5 National Institute for Health and Clinical Excellence (NICE). Guidance on the use of metal on metal hip resurfacing arthroplasty. London: NICE; 2005.
<http://www.nice.org.uk/nicemedia/pdf/HipResurfacing-FinalGuidance.pdf>
- 6 Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Publication no.48. Edinburgh: SIGN; 2000.
<http://www.sign.ac.uk/pdf/sign48.pdf>
- 7 PRODIGY. Monitoring people on disease-modifying drugs (DMARDs). Newcastle upon Tyne: PRODIGY; 2005.
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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - mistænkt

- Danske forløb > Reumatologi > Reumatoid artrit (leddegigt)

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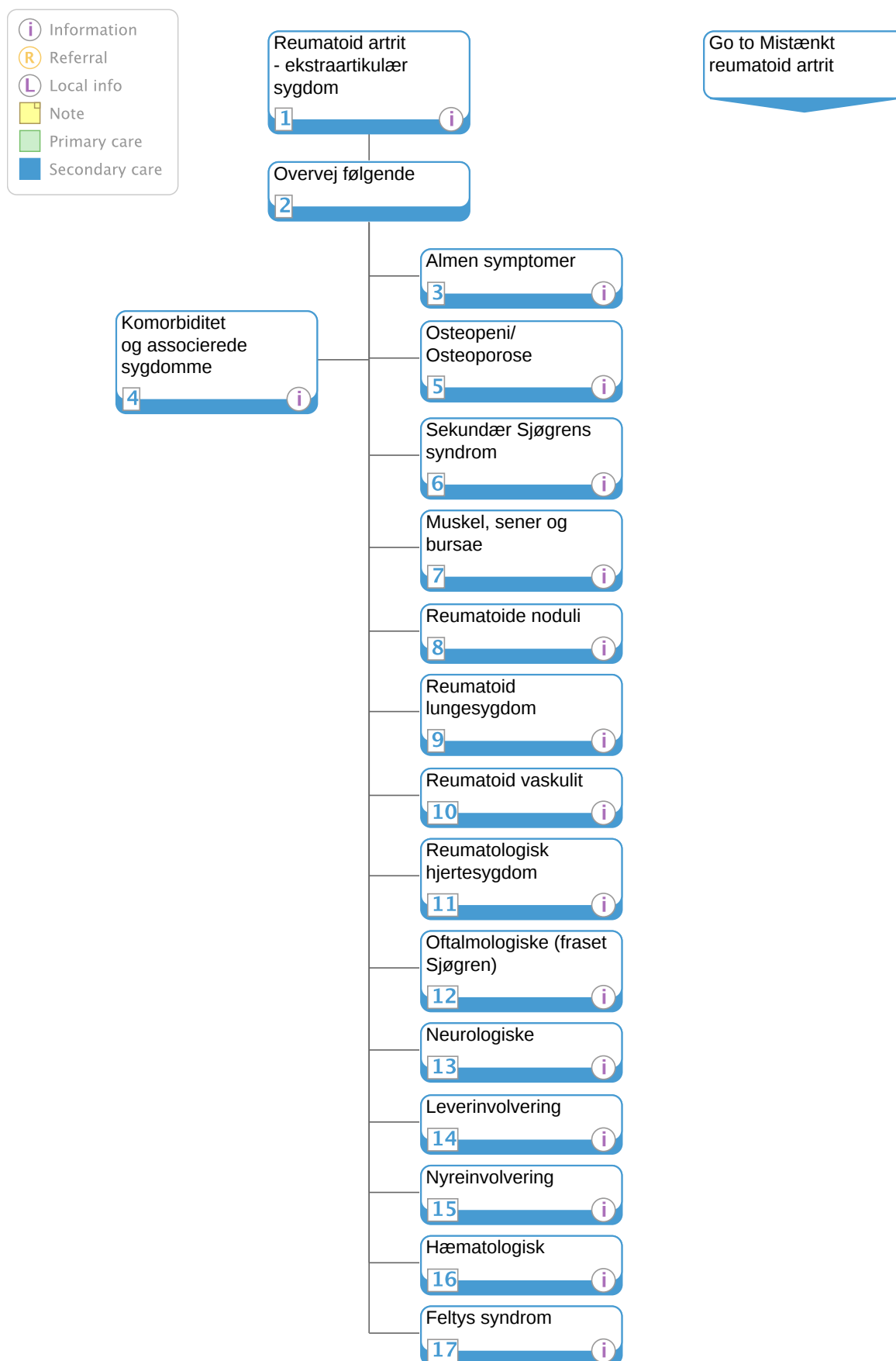
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Reumatoid artrit (leddegigt) - ekstraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)



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Reumatoid artrit (leddegigt) - ekstraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

1 Reumatoid artrit - ekstraartikulær sygdom

Quick info:

Ekstraartikulære manifestationer omfatter

- Almen symptomer
- Osteopeni/osteoporose
- Sekundær Sjøgrens syndrom
- Muskler, sener og bursae
- Reumatoide noduli
- Reumatoid lungesygdom
- Reumatoid vaskulit
- Reumatologisk hjertesygdom
- Oftalmologiske (fraset Sjøgren)
- Neurologiske
- Leverpåvirkning
- Renale
- Hæmatologiske
- Feltys syndrom

Derudover:

- Komorbiditet og associerede sygdomme

Henvi til relevante afdelinger, når indiceret. Se under relevante trin.

3 Almen symptomer

Quick info:

Almen symptomer

- Almen sygdomsfølelse
- Vægttab
- Feber
- Træthed
- Evt. undersøgelser: vægt, temperaturmåling

4 Komorbiditet og associerede sygdomme

Quick info:

Komorbiditet og associerede sygdomme

- Iskæmisk hjertesygdom
- Infektioner
- Malignitet (fx lymfomer)
- Andre autoimmune sygdomme fx B12-mangel, thyroideasygdomme mv

Reumatoid artrit (RA) er en signifikant risikofaktor for iskæmisk hjertesygdom

- Risikoen er relateret til sværhedsgrad og varighed af inflammation
- Det er påvist, at forhøjede niveauer af inflammationsmarkører er prædiktive for mortaliteten af kardiovaskulær sygdom (CVD)
- Statiner reducerer CVD-hændelser hos patienter med forhøjet C-reaktivt protein, selv uden hyperlipidæmi. Statiner har ligeledes en antiinflammatorisk virkning og reducerer sygdomsaktiviteten ved RA
- Behandling med methotrexat kan reversere den kardiovaskulære risiko, der er associeret med aktiv RA
- Der skal gives livsstilsrådgivning til alle patienter med henblik på:
 - Rygeophør
 - Modificere kosten
 - Kontrol af vægten
 - Motion
- Evt. undersøgelse: lipidprofil, EKG, ekko, BT, røntgen af thorax

Referencer:

Lugmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

5 Osteopeni/ Osteoporose

Quick info:

Osteoporose

- Personer med reumatoid artrit (RA) har risiko for fraktur
- Det knogletab, der ligger til grund herfor, er forårsaget af:
 - Inaktivitet
 - Inflammation
 - Osteopeni/osteoporose sekundær til binyrebarkhormonbehandling
- Evt. undersøgelser: DEXA-scanning, ioniseret kalcium, 25-OH-D-vitamin, røntgen ved mistanke om fraktur

Reference:

British Society for Rheumatology (BSR). BSR guideline on standards of care for persons with rheumatoid arthritis. London: BSR; 2004.

6 Sekundær Sjögrens syndrom

Quick info:

Sekundær Sjögrens syndrom

- Er almindelig
- Nedsat tåresekretion
- Munden og vagina kan desuden være tørre
- Evt. undersøgelser: tåre og spyttsekretionstest, spytkirtelbiopsi, øjenlægevurdering

7 Muskel, sener og bursae

Quick info:

Muskelatrofi

- Atrofi forårsaget af inaktivitet
- Kan også være forårsaget af behandlinger for reumatoid artrit, fx glukokortikoid

Sener

- Tendinit

Bursae

- Bursitter

8 Reumatoide noduli

Quick info:

Reumatiske noduli

- Kutane og i indre organer:
 - Kan forekomme i lungerne og hjertet (se reumatoid lungesygdom)
- Er velafgrænsede, faste og uømmelige
- Forekommer på ekstensoroverflader nær sener såsom:
 - Håndryggen
 - Olecranon
 - Akillesenen
- Evt. undersøgelser: klinisk undersøgelse, biopsi

9 Reumatoid lungesygdom

Quick info:

Respiratorisk involvering omfatter

- Pleura
- Pleurit
- Evt. undersøgelser: røntgen af thorax

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

- Lunger
 - Fibrose
 - 10 % subkliniske radiologiske forandringer
 - 2 % fibroserende alveolit
 - Evt. undersøgelser: røntgen af thorax, high resolution CT af thorax, udvidet lungefunktion med transfer faktor
- Reumatoide noduli
 - Evt. undersøgelser: røntgen af thorax, CT, bronkoskopi, biopsi
- Obliterativ bronkiolit og Caplans syndrom
 - Evt. undersøgelser: røntgen af thorax, high resolution CT af thorax
- Hypersensitivitetspneumonit
 - Methotrexat udløst
 - Evt. undersøgelser: røntgen af thorax, high resolution CT af thorax, IgE, eosinofile

10 Reumatoid vaskulit

Quick info:

Vaskulittyper:

- Leukocytoklastisk (palpabel purpura)
- Enderteritis obliterans (neglefoldeblødninger)
- Nekrotiserende vaskulit:
 - Sensorisk polyneuropati
 - Mononeuritis multiplex
 - Systemisk organmanifestationer (hud (ulcerationer, gangræn), indre organer (viscerale infarkter), CNS)
- Ved truende organpåvirkning eller motoriske udfald iværksættes akut vurdering og behandling
- Evt. undersøgelser: biopsi, EMG, undersøg for systemiske manifestationer, henvis til dermatolog/neurolog

11 Reumatologisk hjertesygdom

Quick info:

- Perikardit
 - Op til 10% har subklinisk involvering
 - Evt. undersøgelser: ekkokardiografi, EKG, BT, puls
- Valvulit
 - Op til 20 % med reumatoid artrit er afficeret subklinisk
 - Aorta- og mitralklapperne kan være afficerede
 - Evt. undersøgelse: ekkokardiografi, EKG, BT, puls
- Myocarditis og reumatisk noduli

Reference:

Luqmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

12 Oftalmologiske (fraset Sjögren)

Quick info:

Episklerit

- Symptomer: øjensmerter, udvidede blodkar på conjunctiva, tåreflod og lysskyhed
- Forbigående, men kan være associeret med vaskulit et andet sted
- Henvis til øjenlæge mhp vurdering og evt. behandling med topikale steroider

Sklerit

- Symptomer: uklart syn, svære øjensmerter, rødme af conjunctiva, tåreflod og lysskyhed
- Kan medføre skleromalaci
- Overvej systemiske glukokortikoider
- Skal henvises akut til øjenlæge

13 Neurologiske

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Quick info:

Perifer neuropati

- Perifer polyneuropati:
 - Sensorisk polyneuropati i handske- og sok-området er relativt sjælden
 - Blandet perifer sensorimotorisk neuropati (obs. vaskulit)
 - Mononeuritis multiplex (obs. vaskulit)
 - Kan kræve højdosis glukokortikoid og cyclophosphamid behandling - evt. akut
- Trykneuropati
 - Karpaltunnel syndrom
 - Tarsaltunnel syndrom
 - Tryk på n. ulnaris, radialis og n. peroneus
- Ved truende organpåvirkning eller motoriske udfald, iværksættes akut vurdering og behandling
- Evt. undersøgelser: evt. undersøgelse: EMG, UL, neurologisk vurdering

Central nervepåvirkning

- Tryk på medulla pga atlantoaksial instabilitet
- Evt. undersøgelse: røntgen af columna cervicalis med funktionsoptagelser, MR, neurokirurgisk vurdering

14 Leverinvolvering

Quick info:

10 % med reumatoid artrit (RA) har leverinvolvering såsom

- Let hepatosplenomegali
- Fedtlever forårsaget af lægemiddelbehandlinger fx:
 - Sulfasalazin
 - Methotrexat
 - Leflunomid
 - NSAID
- Evt. undersøgelse: ultralyd af abdomen, ALAT, basisk fosfatase, albumin, faktor II, VII og X (PP-værdi)

15 Nyreinvolvering

Quick info:

Nyreinvolvering

- Nyreamyloidose (meget sjælden)
 - Evt. undersøgelser: immunoglobuliner, M-komponent, urinstix for protein, døggnurin for protein, evt. urinsediment, UL af nyrer, biopsi fra abdominal fedt eller afficeret organ, henvis til nefrolog
- Nefropati fremkaldt af:
 - Non-steroidale antiinflammatoriske stoffer (NSAID)
 - Penicillamin og guldbehandling
- Evt. undersøgelser: urinstix, døggnurin for protein, evt. urinsediment, UL af nyrer, henvis til nefrolog

16 Hæmatologisk

Quick info:

- Anæmi ved kronisk sygdom (normokrom normocytær anæmi)
- Trombopeni, trombocytose
- Leukopeni
- Differentialdiagnoser
 - Anæmi, trombopeni, leukopeni pga. behandling (NSAID, DMARD)
 - Feltys syndrom
 - Folatmangel eller B12-mangel
 - Leukocytose pga. glukokortikoid
- Evt. undersøgelser: s-jern, transferrin, ferritin, MCV, reticulocytter, B12, folat

17 Feltys syndrom

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Quick info:

Feltys syndrom består af

- Reumatoid artrit (RA)
- Splenomegali
- Leukopeni
- Evt. undersøgelse: UL af abdomen, hæmoglobin, leukocytter, trombocytter, differentieltælling, MCV, knoglemarvsundersøgelse

IMPORTANT NOTE

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Reumatoid artrit (leddegigt) - extraartikulær sygdom

The pathway is consistent with the following quality-appraised guidelines (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

This pathway was updated based on NICE guidance (4, 43) in February 2008.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page	Evidence grade	Reference IDs
Reumatologisk hjertesygdom	U	44
Osteopeni/ Osteoporose	U	3
Komorbiditet og associerede sygdomme	U	44

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This is a list of all the references that have passed critical appraisal for use in the pathway Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - extraartikulær sygdom

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

ID Reference

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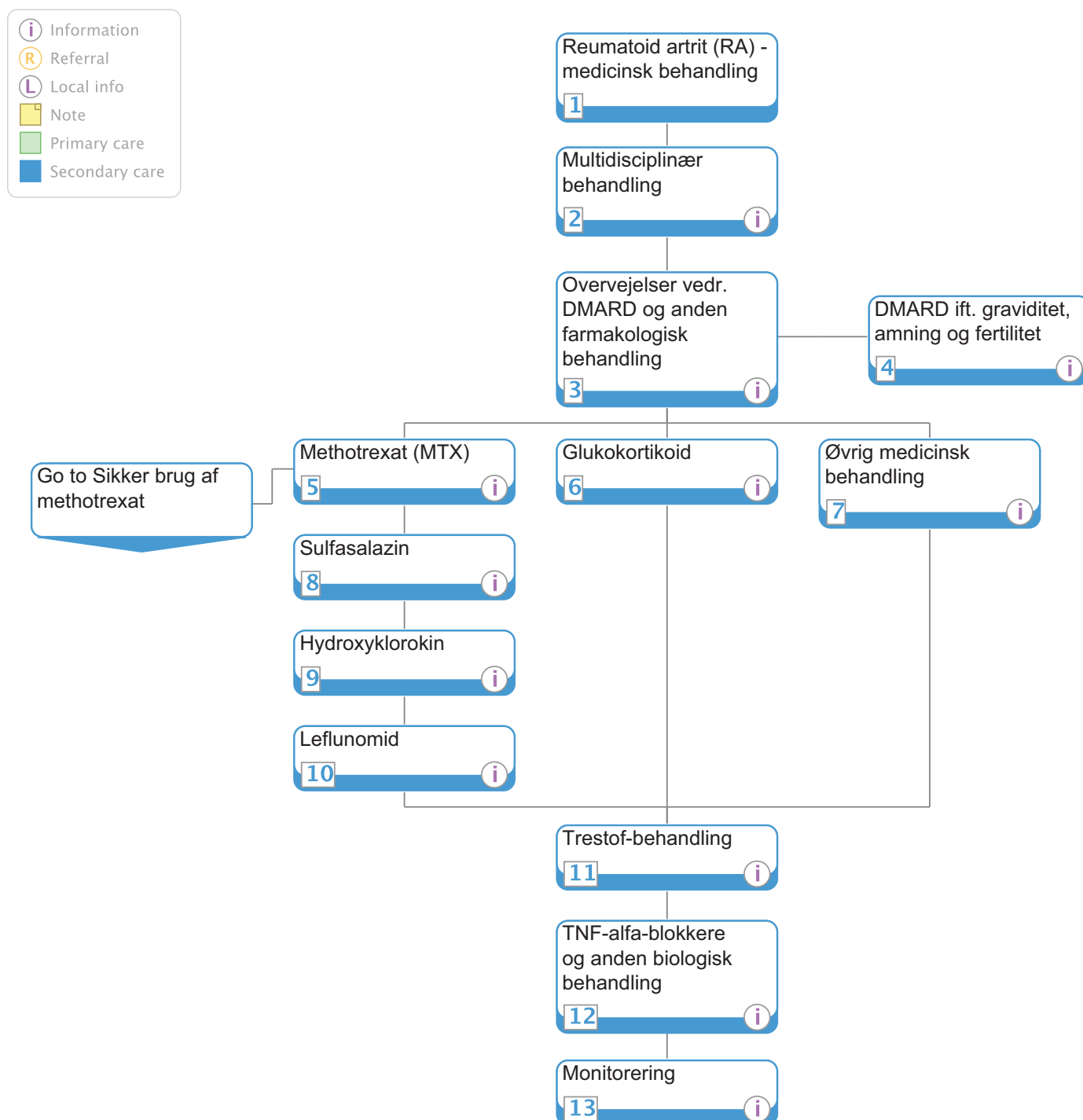
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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)



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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

2 Multidisciplinær behandling

Quick info:

Behandlingen af reumatoid artrit (RA) er multidisciplinær og omfatter:

- Farmakologisk behandling
- Fysioterapi/ergoterapi
- Patientuddannelse og interventioner, der sigter mod mestring af sygdom
- Kirurgiske interventioner, om nødvendigt

Behandling sigter mod at:

- Kontrollere inflammation
- Kontrollere ledsmerter
- Reducere og forebygge beskadigelse af led
- Forebygge funktionsnedsættelse
- Forbedre livskvalitet
- Træne patienterne i mestring af sygdom

Overvej kirurgiske interventioner såsom:

- Ledprotese
- Synovektomi
- Artrodese

Det multidisciplinære team omfatter ideelt set:

- Alment praktiserende læge
- Reumatologisk speciallæge
- Reumatologisk specialsygeplejerske
- Fysioterapi
- Ergoterapi
- Ortopædkirurgisk speciallæge
- Bandagist
- Fodterapeut
- Socialrådgiver
- Psykolog og/eller psykiater
- Diætist

Supplerende behandlinger kan omfatte:

- Diæt og kosttilskud
- Afslapningsteknikker
- Terapeutisk træning:
 - Træning af bevægeudslag
 - Styrketræning
 - Aerobic-/udholdenhedstræning
 - Træning af hænder for at opretholde håndfunktion
 - Forsyne patienterne med vejledning om effektiv træning tidligt i sygdomsprocessen
- Akupunktur
- Varmebehandling
- Alexander-teknik
- Hydroterapi
- Anvendelse af varme til at lindre stivhed
- Anvendelse af kulde til at lindre smerter

NB: Overvej kun supplerende behandlinger som en hjælp til medicinsk, fysioterapeutisk og kirurgisk behandling.

Referencer:

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

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Ortiz Z, Shea B, Suarez AM et al. Folic acid and folinic acid for reducing side effects in patients receiving methotrexate for rheumatoid arthritis. Cochrane Database Syst Rev 2000; CD000951.

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3 Overvejelser vedr. DMARD og anden farmakologisk behandling

Quick info:

Alle patienter med persisterende inflammatorisk ledsygdom af mere end 6 ugers varighed skal overvejes til behandling med DMARD (disease modifying antirheumatic drugs)

- Behandlingen bør opstartes tidligst muligt og optimalt inden for 12 uger
- De hyppigst brugte DMARD'er er:
 - Methotrexat
 - Sulfasalazin
 - Hydroxychloroquin
 - Leflunomid
- Overvej immunisering over for varicella-zoster virus, hvis patienten er immunsupprimeret og ikke tidligere inficeret eller vaccineret
- Alle patienter skal have deres sygdom og dens indvirkning vurderet og dokumenteret før behandling med DMARD:
 - Anvend HAQ-skema (se DANBIO) ved dokumentation af sygdom
 - Dokumentationen kan med fordel foregå i databasen [DANBIO](#)
- Tidlig DMARD-intervention reducerer ledbeskadigelse
- Behandlingsrespons bør vurderes mindst hver 3. måned efter opstart af DMARD indtil tilstrækkelig behandlingsrespons. Herefter mindst hver 12. måned
- Overvej at supplere med lokal glukokortikoid eller systemiske lavdosis-glukokortikoid til kontrol af symptomer
- Overvej (med specialistvejledning) biologiske lægemidler såsom tumornekrosefaktor-alfa- (TNF-alfa)-blokker, hvis der er høj sygdomsaktivitet på trods af behandling med de klassiske DMARD, herunder methotrexat og evt. kombinationsbehandling

Referencer:

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Saag KG, Teng GG, Patkar NM et al. American College of Rheumatology 2008 Recommendation for the Use of Non-biologic and Biologic Disease-Modifying Antirheumatic Drugs in Rheumatoid Arthritis. Arthritis rheum 2008;59:762-84. <http://www.rheumatology.org/publications/guidelines/index.asp>

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Scottish Intercollegiate Guidelines Network (SIGN). Management of early rheumatoid arthritis. Edinburgh: SIGN; 2000.

PRODIGY. Monitoring people on disease-modifying drugs (DMARDs). Newcastle upon Tyne: PRODIGY; 2005.

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Lugmani R, Hennell S, Estrach C et al. British Society for Rheumatology and British Health Professionals in Rheumatology. Guideline for the management of rheumatoid arthritis (the first 2 years). Rheumatology 2006; 45: 1167-69.

4 DMARD ift. graviditet, amning og fertilitet

Quick info:

Anvendelse af DMARD ved graviditet, graviditetsønsker, amning og ift. fertilitet

- Sulfasalazin
 - Graviditet: Kan bruges, men kan muligvis påvirke fertiliteten negativt hos både kvinde og mand
 - Amning: Kan bruges. Dog forsigtighed ved præmaturitet og/eller neonatal ikterus
- Prednisolon
 - Graviditet: Kan bruges, hvis nødvendigt, men dosis bør holdes så lav som muligt, specielt sidst i graviditeten, da forbigående binyrebarkinsufficiens hos barnet har været meddelt
 - Amning: Kan bruges
- Glukokortikoid-injektioner
 - Graviditet: Bør ikke anvendes pga. utilstrækkelige data. Peroral prednisolon foretrækkes
 - Amning: Bør ikke anvendes pga. utilstrækkelige data. Peroral prednisolon foretrækkes
- Methotrexat (MTX)
 - Graviditet: Må ikke anvendes. Både kvinder og mænd bør holde pause med MTX i mindst 3 måneder før planlagt graviditet. Mænd bør anbefales nedfrysning af sæd, før påbegyndelse af MTX-behandling
 - Amning: Må ikke anvendes
- Hydroxyklorokin
 - Graviditet: Bør ikke anvendes, med mindre indikationen meget stærk
 - Amning: Kan bruges
- Leflunomid
 - Graviditet: Bør ikke anvendes, utilstrækkelige data
 - Amning: Bør ikke anvendes, utilstrækkelige data
- TNF-hæmmere
 - Graviditet: Bør ikke anvendes, utilstrækkelige data
 - Amning: Bør ikke anvendes, utilstrækkelige data

Referencer:

www.medicin.dk

www.fass.se

Databasen "Läkemedel och fosterskador", <http://www.janusinfo.se/gravreg/>

Saag KG, Teng GG, Patkar NM et al. American College of Rheumatology 2008 Recommendation for the Use of Non-biologic and Biologic Disease-Modifying Antirheumatic Drugs in Rheumatoid Arthritis. Arthritis rheum 2008;59:762-84. <http://www.rheumatology.org/publications/guidelines/index.asp>

5 Methotrexat (MTX)

Quick info:

Methotrexat

- Almindeligt førstevalg af DMARD
- Methotrexat administreres som 1 ugentlig dosis

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

- Aftal en bestemt ugedag for dosis - dette øger kompliance og sikkerhed
- Anbefalet startdosis er 15 mg/uge
- Lavere doser (7,5-10 mg/uge) kan være påkrævet hos ældre eller hos personer med nedsat nyrefunktion
- Anbefalet administrationsvej er oral
- Oral dosis øges med 2,5 mg for hver 2 uger indtil 25-30 mg/uge eller uacceptable bivirkninger
- Parenteral administration kan vælges ved utilstrækkelig behandlingsrespons på maksimal oral dosis (25-30 mg/uge)
- Tilskud af folinsyre med mindst 5 mg x 1/uge tilbydes alle patienter for at reducere toksicitet ved methotrexat
- Af hensyn til patientsikkerhed anbefales at folinsyre doseres x 1 /uge - fx dagen efter behandling med methotrexat
- Stil mod P-folat omkring den øvre grænse for normalintervallet
- Monitorer for udvikling af makrocytær anæmi (middelcellevolumen /MCV over 105 fl)
- Graviditet er en kontraindikation

Bivirkninger til methotrexat

- Akut hypersensitivitetspneumonit
 - Rammer 1-5 % af RA-patienterne
 - Risikoen er størst i det første behandlingsår og er dosisafhængig
 - Debutsymptom er akut eller subakut indsættende dyspnø
 - Patienten skal umiddelbart ophøre med methotrexat og kontakte reumatolog
 - Diagnosen stilles anamnestic og bekræftes ved high-resolution CT-scanning
- Toksiske bivirkninger
 - Knoglemarvpåvirkning
 - Leverpåvirkning
 - Betændelse i slimhinder
- Hyppige, mindre alvorlige bivirkninger:
 - Kvalme i dagene efter tabletindtagelsen
 - ALAT-stigning
 - Disse bivirkninger er dosisafhængige og kan ofte forsvinde ved justering af folinsyredosis

Bivirkningsmonitorering

- Monitorer blodprøver:
 - Hver 2. uge indtil 6 uger efter den sidste dosisøgning forudsat at resultaterne er stabile, herefter kontrolleres blodprøver hver 8. uge
 - Hæmoglobin, leukocytter, trombocytter, differentialtælling, MCV, alanin-aminotransferase (ALAT), ASAT, basisk fosfatase, kreatinin, albumin, natrium, kalium, blodsukker
 - Før behandlingsstart: ovenstående samt folat, C-reaktivt protein (CRP), SR og røntgen af thorax
- Monitorer mulige tegn på intolerance eller toksicitet, herunder (men ikke begrænset til): dyspnø, persisterende tør hoste, kvalme og opkastning, diarré, oral ulceration, abnorm blodudtrædning, hududslæt

Referencer:

Ortiz Z, Shea B, Suarez Almazor M et al. Folic acid and folinic acid for reducing side effects in patients receiving methotrexate for rheumatoid arthritis. The Cochrane Database of Systematic Reviews 1999, Issue 4. Art. No.: CD000951. DOI: 10.1002/14651858.CD000951.

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6 Glukokortikoid

Quick info:

Glukokortikoid

- Anvendes som:
 - Tillægsbehandling til DMARD ved inflammatorisk aktivitet
 - "Brobyggende" behandling, mens man afventer maksimal effekt af DMARD
- Kan gives systemisk eller intra-artikulært
- Giver et hurtigt antiinflammatorisk respons (inden for timer til dage)
- Hvis der kun er få hævede led er det en fordel at give glukokortikoid intra-artikulært
- Osteoporoseforebyggelse skal altid overvejes ved brug af kortikosteroider til RA
 - Altid kalk + D vitamin, overvej bisfosfonater

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

- Udlever info om glukokortikoid, fx rødt glukokortikoid-kort.
- Pludselig seponering af kortikosteroider efter lang tids behandling kan medføre Addison-krise. Efter langvaring brug bør systemisk glukokortikoid trappes ud langsomt.

Bivirkninger er dosisafhængige og omfatter

- Øget disposition for infektion
- Glukoseintolerance
- Accelereret osteoporose
- Katarakt/glaukom
- Hudatrofi
- Karakteristisk fedtfordeling (især ved høj dosering)

Monitorering

- DEXA-skanning, vægt, BT, blodsukker, lipidstatus, evt. øjenlæge

Referencer:

J N Hoes JN, Jacobs JWG et al. EULAR evidence-based recommendations on the management of systemic glucocorticoid therapy in rheumatic diseases. *Annals of the Rheumatic Diseases* 2007;66:1560-1567. <http://www.eular.org/>

Gøtzsche PC, Johansen HK. Short-term low-dose corticosteroids vs placebo and nonsteroidal antiinflammatory drugs in rheumatoid arthritis. The Cochrane Database of Systematic Reviews 2005, Issue 1. Art. No.: CD000189. DOI: 10.1002/14651858.CD000189.pub2.

Criswell LA, Saag KG, Sems KM et al. Moderate-term, low-dose corticosteroids for rheumatoid arthritis. The Cochrane Database of Systematic Reviews 1998, Issue 3. Art. No.: CD001158. DOI: 10.1002/14651858.CD001158.

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Emery P, Suarez-Almazor M. Rheumatoid arthritis. *Clin Evid* 2003; 1349-71.

7 Øvrig medicinsk behandling

Quick info:

Non-steroidale antiinflammatoriske stoffer (NSAID):

- Reducerer smerter og stivhed
- NSAID-behandling bør minimeres pga. stor risiko for bivirkninger
- Kontraindikationer omfatter:
 - Behandling med systemiske glukokortikoid
 - AK-behandling (fx warfarin)
 - Alder over 70 år
 - Tidligere kompliceret gastroduodenalt ulcus (perforation, blødning eller striktur)
 - Nedsat nyrefunktion
- Hvis NSAID findes indiceret, og der ikke foreligger kontraindikationer, er førstevalg et præparat anbefalet på Institut for Rationel Farmakoterapi [Nationale Rekommandationsliste](#), fx ibuprofen, diclofenac eller naproxen
- Dosis bør holdes så lav som muligt
- Ved øget risiko for ulcus, bør NSAID kombineres med en proteinpumpeninhibitor (PPI) anbefalet på IRF's Nationale Rekommandationsliste, fx omeprazol eller lansoprazol.
- En RA patient med et dagligt forbrug af NSAID bør betragtes som underbehandlet

Analgetika

- Paracetamol er førstevalg
- Ved behov suppleres med svage opioider
- Stærke opioider er normalt ikke indiceret

Referencer:

Institut for Rationel Farmakoterapi National Rekommandationsliste. www.irf.dk/dk/rekommandationsliste/

National Institute for Health and Clinical Excellence (NICE). Guidance on the use of etanercept and infliximab for the treatment of rheumatoid arthritis. London: NICE; 2005.

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American Pain Society. Pain in osteoarthritis, rheumatoid arthritis, and juvenile chronic arthritis. Glenview, IL: American Pain Society; 2002.

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Blumenauer B, Judd M, Cranney A et al. Etanercept for the treatment of rheumatoid arthritis. Cochrane Database Syst Rev 2003; CD004525.

Blumenauer B, Judd M, Wells G et al. Infliximab for the treatment of rheumatoid arthritis. Cochrane Database Syst Rev 2002; CD003785.

Criswell LA, Saag KG, Sems KM et al. Moderate-term, low-dose corticosteroids for rheumatoid arthritis. Cochrane Database Syst Rev 2000; CD001158.

Garner S, Fidan D, Frankish R, et al. Celecoxib

8 Sulfasalazin

Quick info:

Sulfasalazin

- Anvendes fx ved kontraindikationer mod methotrexat (fx graviditetsønske), eller hvis patienten ikke ønsker methotrexat
- Pga. risiko for kvalme optrædes behandlingen forsigtigt.
 - Der indledes med 500 mg om aftenen
 - Med interval på en uge øges døgndosis med 500 mg til måldosis 1.000 mg × 2
 - Ved manglende effekt kan dosis øges til 1.500 mg × 2
- Effekt forventes efter 8-12 uger

Bivirkninger

- Den alvorligste bivirkning er agranulocytose. Risikoen er størst i de første 3 måneder
 - Patienten bør orienteres om, at hæmoglobin, leukocytter og trombocytter skal kontrolleres ved hver feberepisode
- Overfølsomhedsreaktioner ses ofte efter ca. 3 uger og omfatter en eller flere af følgende
 - Allergisk hududslæt
 - Feber
 - Lymfadenopati
 - Eosinofili
 - Leverpåvirkning
- Almindelige dosisafhængige bivirkninger er kvalme, mavesmerter og hovedpine
- Sulfasalazin kan bruges under graviditet, men infertilitet kan være en bivirkning til sulfasalazin hos både kvinder og mænd

Bivirkningsmonitorering

- Hver 3. uge i de første 3 måneder, herefter hver 3. måned
 - Hæmoglobin, leukocytter, trombocytter, differentialtælling, MCV, kreatinin, albumin, alanin-aminotransferase (ALAT), basisk fosfatase, C-reaktivt protein (CRP)
- Ved hver feberepisode
 - Hæmoglobin, leukocytter, trombocytter, differentialtælling

Referencer:

Suarez-Almazor ME, Belseck E, Shea BJ et al. Sulfasalazine for treating rheumatoid arthritis. The Cochrane Database of Systematic Reviews 1998, Issue 2. Art. No.: CD000958. DOI: 10.1002/14651858.CD000958.

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Emery P, Suarez-Almazor M. Rheumatoid arthritis. Clin Evid 2003; 1349-71.

9 Hydroxyklorokin

Quick info:

Hydroxyklorokin

- Effekten af hydroxyklorokin ved RA er dokumenteret ved dosering 200 mg × 2 dgl.
- Effekten er på kort sigt svagere end for methotrexat
- Man kan først forvente effekt efter 4-6 måneder

Bivirkninger

- Få bivirkninger
- Retinopati er den alvorligste bivirkning, men forekommer meget sjældent (<0,02 %)
- Ellers er bivirkningerne milde og medfører normalt ikke behandlingsophør

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

- Lette gastrointestinale gener, allergisk udslæt og soleksem forekommer
- Patienter bør grundet risiko for soleksem anbefales solfaktorcreme eller hat i solrigt vejr

Bivirkningsmonitorering

- Undersøgelse ved øjenlæge ca. en gang per år
- Løbende blodprøvekontrol er ikke nødvendig

Referencer:

Suarez-Almazor ME, Belseck E, Shea BJ et al. Antimalarials for treating rheumatoid arthritis. The Cochrane Database of Systematic Reviews 2000, Issue 4. Art. No.: CD000959. DOI: 10.1002/14651858.CD000959.

10 Leflunomid

Quick info:

Leflunomid

- Leflunomid er lige så effektivt og tolereret som metotrexat og sulfasalazin
- Der er begrænset viden om langtidsbivirkninger
- Anbefalet dosis: induktion med 100 mg x 3 i tre dage. Herefter 10 - 20 mg dagligt.
- Graviditet er en kontraindikation
- Leflunomid har en meget lang halveringstid (1-4 uger)
 - Ved alvorlige bivirkninger tilrådes udvaskningsprocedure med 8 g colestyramin po x 3 dgl. i 11 dage eller 50 g aktivt kul x 4 dgl. i 11 dage

Bivirkninger

- Knoglemarvspåvirkning
- Blodtrykstigning
- Diarré
- Hud- og slimhindebivirkninger
- Vægttab
- Paræstesier
- Hovedpine

Bivirkningsmonitorering

- Hver 2 uge i de første 6 måneder, herefter hver 6 uge
 - Hæmoglobin, leukocytter, trombocytter, differentialtælling, MCV, kreatinin, albumin, alanin-aminotransferase (ALAT), basisk fosfatase, C-reaktivt protein (CRP)
- Hver 6-12 uge
 - BT

Referencer:

Osiri M, Shea B, Welch V, Suarez-Almazor ME, Strand V, Tugwell P, Wells GA. Leflunomide for treating rheumatoid arthritis. *Cochrane Database of Systematic Reviews* 2002, Issue 3. Art. No.: CD002047. DOI: 10.1002/14651858.CD002047

11 Trestof-behandling

Quick info:

Trestof-behandling

- Der kendes flere mulige kombinationsbehandlinger fx methotrexat
- Trestof-behandling med methotrexat, sulfasalazin og hydroxyklorokin har bedre effekt end enkeltstofferne hver for sig og er den vigtigste kombinationsbehandling
- En anden mulighed er methotrexat i kombination med hydroxyklorokin
- Bedste valg og rækkefølge af sekventielle behandlinger er uafklaret
- Bivirkningerne er på samme niveau for methotrexat
- Hydroxyklorokin anbefales i doseringen 200 mg x 2 dgl
- Sulfasalazin i kombinationsbehandling gives med maximal dosis 1 g x 2 dgl

Referencer:

American College of Rheumatology 2008 Recommendations for the Use of Nonbiologic and Biologic Disease-Modifying Antirheumatic Drugs in Rheumatoid Arthritis. Saag K, Teng GG, Patkar N et al. *Arthritis & Rheumatism*, Vol. 59, No. 6, June 15, 2008, pp 762–784 <http://www.rheumatology.org/publications/guidelines/index.asp>

O'Dell JR, Haire CE, Erikson N et al. Treatment of rheumatoid arthritis with methotrexate alone, sulfasalazine and hydroxychloroquine, or a combination of all three medications. *N Engl J Med*. 1996;334:1287-91

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

O'Dell JR, Leff R, Paulsen G, et al. Treatment of rheumatoid arthritis with methotrexate and hydroxychloroquine, methotrexate and sulfasalazine, or a combination of the three medications: results of a two-year, randomized, double-blind, placebo-controlled trial. *Arthritis Rheum* 2002;46:1164-70.

12 TNF-alfa-blokkere og anden biologisk behandling

Quick info:

Tumornekrosefaktor-alfa (TNF-alfa) og andre biologiske lægemidler

- Midler, som blokerer virkningerne af TNF-alfa (TNF-alfa-blokkere), omfatter:
 - Etanercept
 - Infliximab
 - Adalimumab
- Ved behandlingssvigt af ovenstående behandling kan andre biologiske lægemidler overvejes
- Anvendelse af etanercept, infliximab eller adalimumab overvejes for voksne, som har følgende:
 - Vedvarende klinisk høj sygdomsaktivitet/ progressiv erosiv sygdom
 - Ikke sufficient effekt af behandling med DMARD herunder methotrexat og evt. kombinationsbehandling
 - Vedvarende højt forbrug af glukokortikoid ($\geq 7,5$ mg/dgl)
 - Ordination skal konfirmeres ved afdelingskonference
- Patienterne skal vejledes om den forøgede forekomst af malignitet og alvorlige infektioner
- TNF-alfa-blokkere skal normalt anvendes i kombination med methotrexat, men kan gives som monoterapi
- Behandlingsindikationen og -effekten skal dokumenteres i databasen [DANBIO](#)
- Behandling fortsættes kun, hvis responset ved 3-4 måneder anses for adækvat
- Monitorér mindst hver 4. måned (DANBIO) - seponér behandlingen, hvis adækvat respons ikke opretholdes
- En alternativ TNF-alfa-blokker kan overvejes, når behandlingen er ophørt som følge af bivirkninger
- Kontraindikationer for TNF-alfa omfatter:
 - Akut, kronisk eller latent infektion
 - Udeluk tuberkulose, kronisk viral hepatitis, evt. HIV
 - Kroniske sår og infektionstendens
 - Graviditet og amning
 - Større kirurgisk indgreb
 - Sygehistorie med demyelinisering eller neurologisk sygdom
 - Svær hjertesygdom, NYHA 3-4
- Bivirkninger omfatter øget risiko for
 - Infektion
 - Maligne sygdomme herunder lymfom
 - Multipel sklerose

Referencer:

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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13 Monitorering

Quick info:

Monitorering

- Patienter med moderat til høj sygdomsaktivitet og/eller progressiv erosiv sygdom følges tæt (fx status x 4 om året) hos speciallæge i reumatologi
- Behandlingsændringer monitoreres, når der er forventet indtrådt effekt
- Patienter med lav sygdomsaktivitet eller remission kan monitoreres fx x 1 årligt hos speciallæge i reumatologi
- Herudover følges evt. blodprøver fx hos egen læge

Billedfremstilling af leddene

- Skal foretages så tidligt som muligt
- Gentages måned 6, 12, 18 og 24 fra symptomdebut
- Derefter billedfremstilling af leddene efter behov

Opfølgningsvurdering af RA-patienter i DMARD-behandling omfatter

- Gennemgang af medicindosering
- Vurdering af sygdomsaktivitet
- Vurdering af ekstraartikulær sygdom
- Vurdering af funktionsnedsættelse og livskvalitet (HAQ- score, [DANBIO](#))
- Vurdering af kardiovaskulær risiko, BT og kolesterol
- Vurdering af komorbide tilstande
- Monitorering af eventuelle bivirkninger til lægemiddelbehandlinger
- Information om hjælpemidler

Referencer:

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Reumatoid artrit (leddegigt) - medicinsk behandling

The pathway is consistent with the following quality-appraised guidelines (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

This pathway was updated based on NICE guidance (4, 43) in February 2008.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page	Evidence grade	Reference IDs
Overvejelser vedr. DMARD og anden farmakologisk behandling	1	2, 6, 7, 11, 22, 42, 44, 50, 51, 56, 57
Methotrexat (MTX)	1	7, 11, 22, 58, 59
Sulfasalazin	1	7, 11, 22
Trestof-behandling	1	65, 69, 70
TNF-alfa-blokkere og anden biologisk behandling	1	2, 4, 6, 9, 11, 22, 14, 44, 45, 65
Øvrig medicinsk behandling	1	4, 6, 7, 9, 10, 11, 14, 15, 20, 23, 29, 36, 37, 39, 40, 44, 64
Multidisciplinær behandling	1	1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 27, 28, 30, 31, 32, 38, 44, 47
Glukokortikoid	1	60, 62, 63
Hydroxyklorokin	1	36
Leflunomid	1	68
DMARD ift. graviditet, amning og fertilitet	1	56
Monitorering	1	3, 5, 6, 7, 11, 44

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This is a list of all the references that have passed critical appraisal for use in the pathway Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Reumatoid artrit (leddegigt) - medicinsk behandling

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

ID Reference

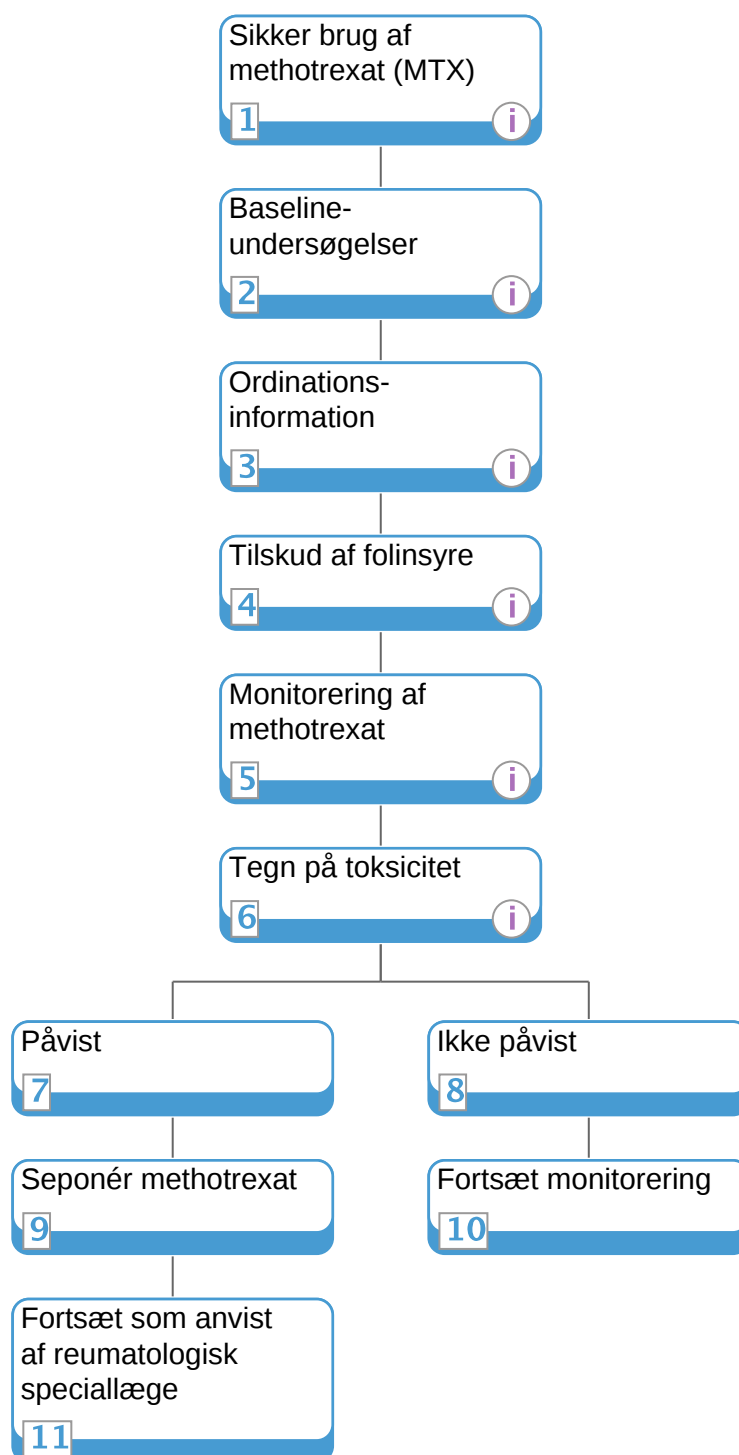
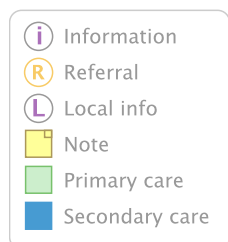
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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)



Go to RA medicinsk
behandling

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

1 Sikker brug af methotrexat (MTX)

Quick info:

- Methotrexat er potentielt toksisk, hvorfor sikker brug kræver omhu og tæt monitorering
- Methotrexat har en anderledes dosering ved RA end som cytostatika
 - Methotrexat ved RA skal altid kun tages 1 gang pr. uge
 - Angiv altid specifikt hvilken ugedag, methotrexat skal indtages
 - Hvis den ugentlige dosis indtages hver dag, er der stor risiko for svær morbiditet med betydelig mortalitet
- Toksitet ved methotrexatterapi
 - Er overvejende tilskrevet ordinations- og monitoreringsfejl
 - Sundhedspersoner uden for reumatologi er ofte involveret
 - Risiko for fejl er særlig stor ved sektorskifte fx skift til primærsektor
 - Den væsentligste fejl er daglig dosering af methotrexat
 - Der er forekommet forveksling af folinsyre og methotrexat doseringerne
- Anvendt korrekt er methotrexat et sikkert og effektivt lægemiddel til behandling af reumatoid artrit, psoriasisartrit og visse maligne tilstande

Referencer:

Sundhedsstyrelsens rapport: Risikomedicin - Præparater som er involveret i faktuelle og potentielle SAC 3 hændelser. http://www.sst.dk/publ/Publ2007/EFT/DPSD/Temrap07_risikomed_dpsd_9nov07fin.pdf

2 Baseline-undersøgelser

Quick info:

Forud for methotrexatterapi vurderes følgende

- Blodprøver: hemoglobin, leucocytter, trombocytter, differentialtælling, MCV, albumin, ALAT, ASAT, basisk fosfatase, kreatinin, natrium, kalium, blodsukker
- Røntgenundersøgelse af thorax
- Anamnese vedrørende mulig lungesygdom
- Anamnese vedrørende alkoholvaner
- Udeluk graviditet
- Ved fertile patienter af begge køn drøftes fertilitet, herunder også graviditetsønske samt sikker prævention

Referencer:

National Patient Safety Agency. Towards the safer use of oral methotrexate. London: National Patient Safety Agency; 2004.
British Society for Rheumatology (BSR). National guidelines for the monitoring of second line drugs. London: BSR; 2000.

3 Ordinations-information

Quick info:

- Methotrexat administreres som 1 ugentlig dosis
- Aftal en bestemt ugedag for dosis - dette øger kompliance og sikkerhed
- Anbefalet startdosis er 15 mg/uge po
- Lavere doser (7,5-10 mg/uge) kan være påkrævet hos ældre eller hos personer med nedsat nyrefunktion
- Dosis øges med 2,5 mg for hver 2 uger indtil 25-30 mg/uge eller uacceptable bivirkninger
- Anbefalet administrationsvej er oral
- Parenteral administration kan vælges ved utilstrækkelig behandlingsrespons på maksimal oral dosis (25-30 mg/uge)
- For begge køn anbefales pausering med methotrexat 3 måneder før påtænkt graviditet
- Methotrexat pauseres under graviditet og amning
- Methotrexat skal ikke pauseres forud for planlagt ortopædkirurgisk behandling
- Udlever [information til patienter om methotrexat](#)

Der skal udvises ekstrem omhu ved ordination af methotrexat

- Sørg for, at en enkelt læge er tildelt ansvaret for monitorering, patientgennemgang og dosisændringer (enten på primære eller sekundære sundhedssektorniveau)
- Alle ordinationsvejledninger (herunder vejledninger fra reumatologisk speciallæge til alment praktiserende læge) skal klart oplyse
 - Lægemidlets navn og styrke
 - Dosis og administrationshyppighed
 - Nødvendigt monitoreringsniveau

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid arthritis (leddegigt)

- Skriv ugedag på recept, medicinkort, udskrivningsbrev mv
- Brug aldrig forkortelse for ugentligt
- Anvend om muligt ordinationsadvarslen i medicin.dk
- Sørg for, at patienten og/eller pårørende er fuldt informeret om lægemidlet, dets anvendelse, dosering, potentielle bivirkninger og behov for monitorering. Patienten skal orienteres mundtligt og skriftligt.

Yderligere overvejelser ved ordination af methotrexat

- Anbefal patienten alkoholrestriktion med max. 3 genstande/uge
- Levende vacciner må ikke gives til patienter, der tager methotrexat
 - Influenzavaccination er ikke kontraindiceret
- Sulfa, trimethoprim og cotrimoxazol kan øge virkningen af methotrexat
- Samtidig brug af acetylsalicylsyre, non-steroidale antiinflammatoriske stoffer (NSAID) og leflunomid er ikke kontraindiceret, men der er behov for mere omhyggelig monitorering

Referencer:

Sundhedsstyrelsens rapport: Risikomedicin - Præparater som er involveret i faktuelle og potentielle SAC 3 hændelser. http://www.sst.dk/publ/Publ2007/EFT/DPSD/Temarap07_risikomed_dpsd_9nov07fin.pdf

National Patient Safety Agency. Towards the safer use of oral methotrexate. London: National Patient Safety Agency; 2004.

British Society for Rheumatology (BSR). National guidelines for the monitoring of second line drugs. London: BSR; 2000.

4 Tilskud af folinsyre

Quick info:

- Tilskud af folinsyre med mindst 5 mg x 1/uge tilbydes alle patienter for at reducere toksicitet ved methotrexat
- Af hensyn til patientsikkerhed anbefales at folinsyre doseres x 1 /uge - fx dagen efter behandling med methotrexat
- Stil mod P-folat omkring den øvre grænse for normalintervallet
- Monitorer for udvikling af makrocytær anæmi (middelcellevolumen /MCV over 105 fl)
 - Ved makrocytær anæmi kontroller B12 + folat
 - Ved påvist B12/folat-mangel udredes patienten og B12/folinsyre-tilskud indledes/øges
- Der er forekommet fejl hos patienter, der tager methotrexat- og folinsyretabletter
 - Sørg for, at patienten fuldstændigt forstår forskellen mellem de to tabletter, deres doseringsskemaer, og hvordan man skelner korrekt mellem de enkelte tabletter og deres emballage

Referencer:

Recommendations Issued for Use of Methotrexate for Rheumatic Disorders. CME Barclay L, Murata P. <http://www.medscape.com/viewarticle/584275> <http://www.reumatominas.com.br/downloads/Recommendations.pdf>

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British Society for Rheumatology (BSR). National guidelines for the monitoring of second line drugs. London: BSR; 2000.

5 Monitorering af methotrexat

Quick info:

Sørg for omhyggelig monitorering

- Monitorér blodprøver:
 - Hver 2. uge indtil 6 uger efter den sidste dosisøgning forudsat at resultaterne er stabile
 - Herefter kontrolleres blodprøver hver 8. uge
 - Hæmoglobin, leukocytter, trombocytter, differentialtælling, MCV
 - Alanin-aminotransferase (ALAT), ASAT, basisk fosfatase,
 - Kreatinin, albumin, natrium, kalium, blodsukker
 - Før behandlingsstart: ovenstående samt folat, C-reaktivt protein (CRP), SR og røntgen af thorax
- Monitorer mulige tegn på intolerance eller toksicitet, herunder (men ikke begrænset til)
 - Dyspnø
 - Persisterende tør hoste
 - Kvalme og opkastning
 - Diarré
 - Oral ulceration
 - Abnorm blodudtrædning
 - Hududslæt

Bivirkninger til methotrexat

- Akut hypersensitivitetspneumonit

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

- Rammer 1-5 % af RA-patienterne
- Risikoen er størst i det første behandlingsår og dosisafhængig
- Debutsymptom er akut eller subakut indsættende dyspnø
- Patienten skal umiddelbart ophøre med methotrexat og kontakte reumatolog
- Diagnosen stilles anamnestisk og bekræftes ved high-resolution CT-scanning
- Toksiske bivirkninger
 - Knoglemarvpåvirkning
 - Leverpåvirkning
 - Betændelse i slimhinder
- Hyppige, mindre alvorlige bivirkninger
 - Kvalme i dagene efter tabletindtagelsen
 - ALAT-stigning
 - Disse bivirkninger er dosisafhængige og kan ofte forsvinde ved justering af folinsyredosis

Reference:

National Patient Safety Agency. Towards the safer use of oral methotrexate. London: National Patient Safety Agency; 2004.

6 Tegn på toksicitet

Quick info:

Ved de følgende omstændigheder skal methotrexat seponeres, og yderligere behandling anvises af en reumatologisk speciallæge:

- Leukocytter falder til under $4 \times 10^9/l$
- Neutrofilocytter falder til under $2 \times 10^9/l$
- Trombocytter falder til under $150 \times 10^9/l$
- Aspartataminotransferase (ASAT) eller alaninaminotransferase (ALAT) over 3 gange den øvre laboratoriegrænse
 - Ved stigning i ALAT eller AST *op til* 3 gange øvre laboratoriegrænse reduceres dosis af methotrexat, blodprøver kontrolleres hyppigere, og årsagen til leverpåvirkning søges afklaret
- Signifikant fald i albumin
- Udvikling af persisterende tør hoste eller dyspnø
- Udvikling af hududslæt eller slimhindeulceration
- Udvikling af smerter i halsen eller abnorm blodudtrædning (kontroller fuldstændigt blodbillede: hæmoglobin, leukocytter, trombocytter, differentialetælling, MCV)
- Nedsat nyrefunktion
- Kontinuerligt eller hurtigt fald i hæmoglobin, leukocytter eller trombocytter

Referencer:

British Society for Rheumatology (BSR). National guidelines for the monitoring of second line drugs. London: BSR; 2000.

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

Key Dates

Due for review: 30-Oct-2010

Locally reviewed: 24-Apr-2009, by Denmark

Updated: 24-Apr-2009

Evidence summary for Sikker brug af methotrexat

The pathway is consistent with the following quality-appraised guidelines (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

This pathway was updated based on NICE guidance (4, 43) in February 2008.

Search date: Apr-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Sikker brug af methotrexat (MTX)

Baseline-undersøgelser

Ordinations-information

Tilskud af folinsyre

Monitorering af methotrexat

Tegn på toksicitet

Evidence grade

U

2

2

2

2

E

Reference IDs

67

41, 42

41, 42, 67

41, 42

41

42

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This is a list of all the references that have passed critical appraisal for use in the pathway Reumatoid artrit (leddegigt)

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

ID Reference

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Locally reviewed: 24-Apr-2009 Due for review: 30-Oct-2010 Printed on: 18-Sep-2009 © Map of Medicine Ltd

IMPORTANT NOTE

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Sikker brug af methotrexat

Medicine > Rheumatology > Reumatoid artrit (leddegigt)

ID Reference

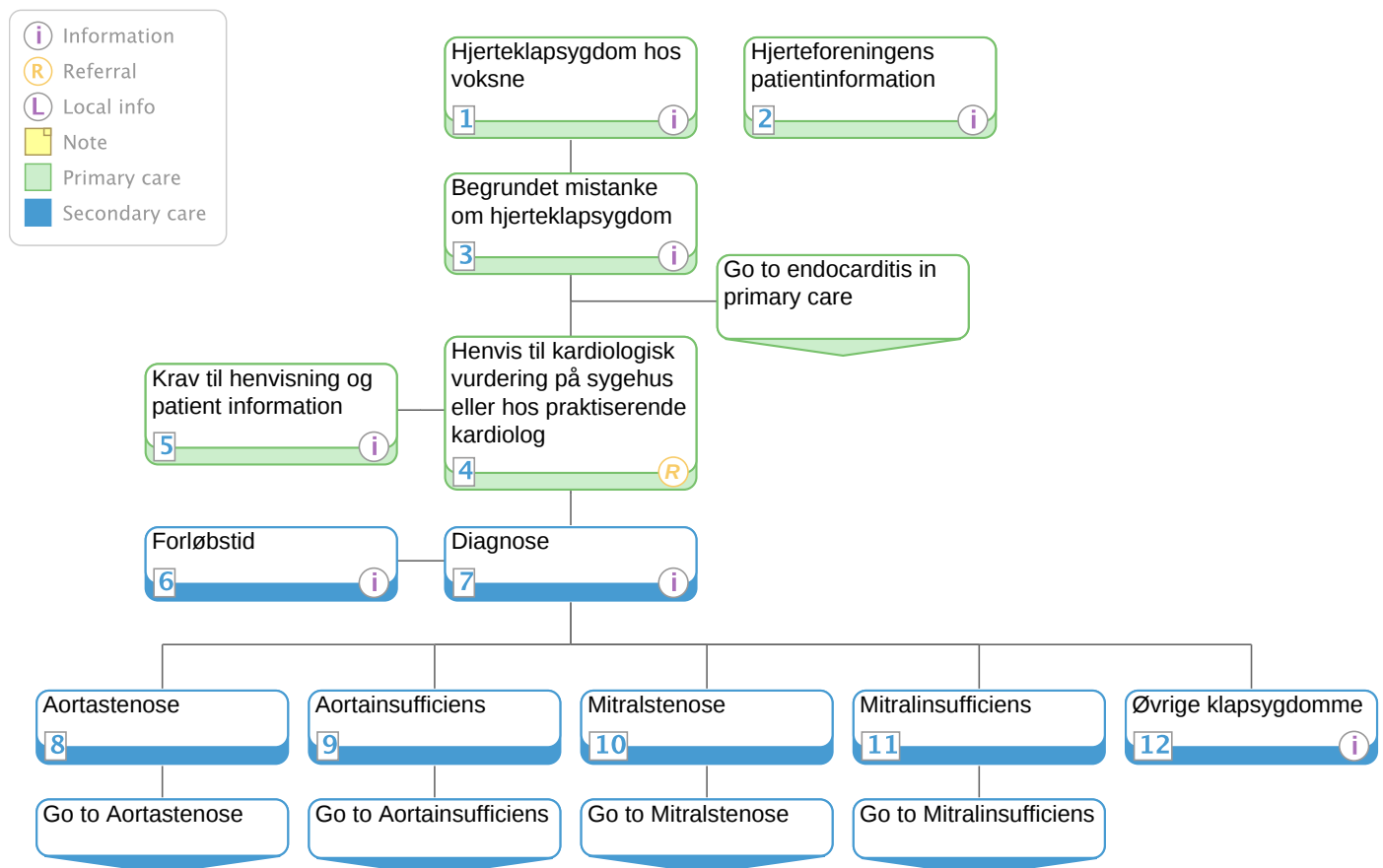
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Hjerteklapsygdom hos voksne

- Danske forløb > Kardiologi > Hjerteklapsygdom



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Hjerteklapsygdom hos voksne

- Danske forløb > Kardiologi > Hjerteklapsygdom

1 Hjerteklapsygdom hos voksne

Quick info:

Hjerteklapsygdom mistænkes klinisk

Typiske karakteristika omfatter:

- mislyde
- synkope eller præsynkope
- karakteristika for hjertheinsufficiens
- palpitationer
- cyanose
- hypotension
- abnormt pulstryk

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

2 Hjerteforeningens patientinformation

Quick info:

På dette link findes Hjerteforeningens pjese om hjerteklapsygdom.

<http://www.hjerteforeningen.dk/sw43383.asp>

3 Begrundet mistanke om hjerteklapsygdom

Quick info:

Der er begrundet mistanke om hjerteklapsygdom, hvis nedenstående kriterier er opfyldt (se Sundhedsstyrelsens pakkeforløb for [hjerteklapsygdom](#)):

A) Patienten har mindst ét af nedenstående symptomer:

- uforklaret åndenød
- væskeretention
- abnorm trætheds og nedsat funktionsniveau

OG

- mistanken om hjerteklapsygdom opretholdes efter: EKG, lungefunktionsundersøgelse samt blodprøver (hæmoglobin, natrium, kalium og kreatinin)

B) Patienter med:

- uafklaret mislyd ved hjertestetoskopi

Svar på EKG, lungefunktionsundersøgelse samt blodprøver (hæmoglobin, natrium, kalium og kreatinin) skal foreligge på den modtagende afdeling, når patienten møder til første kontakt.

Undersøgelingsprogrammet må dog ikke være et unødvendigt forsinkende led i forhold til henvisning ved begrundet mistanke om hjerteklapsygdom.

Patienten kan have symptomer i varierende grad. Hvis patienten er akut medtaget, som følge af ovenstående, skal patienten indlægges akut.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

5 Krav til henvisning og patient information

Quick info:

Locally reviewed: 13-Oct-2009 Due for review: 13-Apr-2011 Printed on: 25-Jan-2010 © Map of Medicine Ltd

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Hjerteklapsygdom hos voksne

- Danske forløb > Kardiologi > Hjerteklapsygdom

Ved henvisning til pakkeforløb skal henvisende læge:

- anføre anamnese med angivelse af sværhedsgraden af symptomer (NYHA klasse), objektive fund og medicinliste.
- af henvisningen skal fremgå, hvorledes patienten kan kontaktes telefonisk.
- svar på EKG, lungefunktionsundersøgelse samt blodprøver(hæmoglobin, natrium, kalium og kreatinin) skal foreligge på den modtagende afdeling, når patienten møder til første kontakt.

Patienten skal af henvisende læge orienteres om den begrundede mistanke om hjerteklapsygdom ved henvisning til pakkeforløb, samt at den primære diagnostiske undersøgelse er ekkokardiografi.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

6 Forløbstid

Quick info:

Den maksimale ventetid fra henvisning til pakkeforløb til første diagnostiske undersøgelse i form af ekkokardiografi er 7 hverdage. Dagene op til modtagelse af patienten bruges til at håndtere henvisningspapirerne, evt. blodprøvetagning, LFU samt EKG derudover booke andre relevante undersøgelser og samtaler samt indkaldelse af patienten. Der skal foreligge svar fra EKG, lungefunktionsundersøgelse og blodprøver når patienten møder til den primære udredning i pakkeforløbet.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

7 Diagnose

Quick info:

Diagnosen stilles ved ekkokardiografi

- differentialdiagnoser omfatter:
 - lungesygdom
 - anæmi
 - akut koronarsyndrom (AKS)

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>
Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

12 Øvrige klapsygdomme

Quick info:

Patienter med tricuspidal, pulmonal klapsygdom eller andre komplekse hjertesygdomme henvises direkte til

- kardiologisk subspecialist

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Hjerteklapsygdom hos voksne

- Danske forløb > Kardiologi > Hjerteklapsygdom

Key Dates

Due for review: 13-Apr-2011

Locally reviewed: 13-Oct-2009, by Denmark

Updated: 13-Oct-2009

Evidence summary for Hjerteklapsygdom hos voksne

The pathway is consistent with the following quality-appraised guidelines (1, 7, 8, 2). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Oct-2009

Evidence grades:

- 1** Intervention node supported by level 1 guidelines or systematic reviews
- 2** Intervention node supported by level 2 guidelines
- E** Intervention node based on expert clinical opinion
- U** Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Hjerteklapsygdom hos voksne

Diagnose

Begrundet mistanke om hjerteklapsygdom

Krav til henvisning og patient information

Forløbstid

Evidence grade

U

1

E

E

E

Reference IDs

8, 2

10, 2, 4

9

9

9

References

This is a list of all the references that have passed critical appraisal for use in the pathway Hjerteklapsygdom

ID Reference

- 1 Butchart EG Gohlke-Barwolf C Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.
- 2 Dansk Cardiologisk Selskab (DCS). National behandlingsvejledning for hjerteklapsygdom NBV 2009. København: DCS; 2009.
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<http://www.cardio.dk/sw80.asp>
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<http://www.cardio.dk/sw80.asp>
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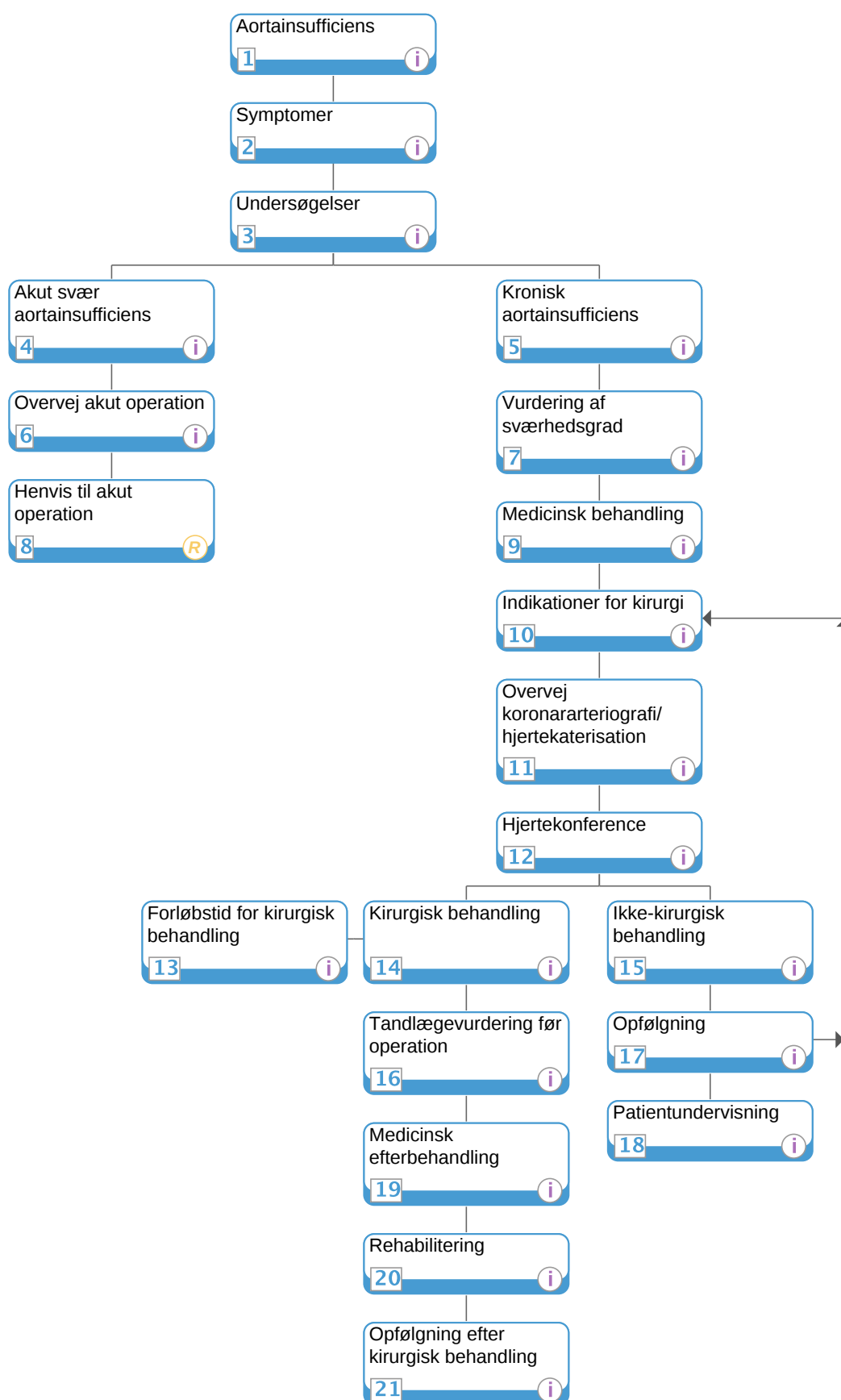
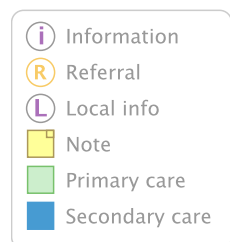
Locally reviewed: 13-Oct-2009 Due for review: 13-Apr-2011 Printed on: 25-Jan-2010 © Map of Medicine Ltd

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom



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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

1 Aortainsufficiens

Quick info:

Årsager:

- kongenitte aortaklapabnormiteter
- marfans syndrom
- idiopatisk aortadilatation
- aorta dissektion
- reumatisk sygdom
- systemisk hypertension
- kalcificeret degeneration
- infektiøs endokardit (giver oftest akut aortainsufficiens)
- myksomatøs degeneration

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

2 Symptomer

Quick info:

Symptomer på akut aortainsufficiens:

- præsenterer sig ofte som:
 - kardiogent shock
 - lungeødem
- andre symptomer ved akut aortainsufficiens:
 - dyspnø
 - hypotension
 - angina pectoris
 - palpitation
 - påvirket almentilstand

Symptomer på kronisk aortainsufficiens:

- dyspnø
- angina pectoris
- palpitationer

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

3 Undersøgelser

Quick info:

Overvej:

- ekkokardiografi
- transøsofageal ekkokardiografi
- elektrokardiografi (EKG)
- røntgenundersøgelse af thorax
- lungefunktionsundersøgelse (LFU)

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

- CT ved mistanke om aortadissektion eller aortadilatation
- I tvivlstilfælde vedrørende sværhedsgrad af aortainsufficiens kan der suppleres med MR
- koronararteriografi (KAG), alternativt CT

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

4 Akut svær aortainsufficiens

Quick info:

Typiske fund

- EKG
 - ledningsabnormitet
 - iskæmi
 - sinustakykardi
- røntgenundersøgelse af thorax
 - normal størrelse af hjertet
 - lunestase/lungeødem
- ekkokardiografi
 - normal dimensioneret venstre ventrikel
 - udtalt hyperkinetisk venstre ventrikel
 - evt. tidlig mitrallukning
 - evt. tegn på aortadissektion eller endokarditis

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

5 Kronisk aortainsufficiens

Quick info:

Typiske fund

- EKG:
 - venstresidig hypertrofi
 - venstresidig belastning
- røntgenundersøgelse af thorax :
 - forstørret aortarod
 - kardiomegali
- ekkokardiografi :
 - dilateret/volumenbelastet venstre ventrikel
 - bredt insufficiens jet

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

6 Overvej akut operation

Quick info:

Overvej akut operation, specielt hvis akutte symptomer skyldes infektiøs endokardit eller aortadissection

- sørg for sikker transport af patienten

Reference:

Vejledning for præ- og interhospital transport af hjertepatienter, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13281.asp>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

7 Vurdering af sværhedsgrad

Quick info:

Sværhedsgrad af aortainsufficiens opdeles i:

- svær
- moderat
- let

Sværhedsgrad af aortainsufficiens bestemmes vha.:

- ekkokardiografi, farve-Doppler
- ved tvivl evt. MR-skanning

Gå til <http://ekkokardiografi.dk> for flere detaljer.

Referencer:

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

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9 Medicinsk behandling

Quick info:

Overvej:

- antihypertensiv behandling
- overvej kortvarig vasodilatatorbehandling initialt for at bedre den kardielle profil, før evt.kirurgisk behandling arytmier behandles som vanligt (se [atrial fibrillation](#))
- overvej vasodilaterende behandling og angiotensinkonverterende enzym-hæmmere (ACE-hæmmere) til specifikke indikationer

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

10 Indikationer for kirurgi

Quick info:

Locally reviewed: 13-Oct-2009 Due for review: 13-Apr-2011 Printed on: 25-Jan-2010 © Map of Medicine Ltd

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Overvej udskiftning af aortaklap (aortic valve replacement) efter vurdering af kliniske data, ekkokardiografi og evt. koronar angiografi (KAG) ved:

- svær aortainsufficiens:
 - symptomatiske patienter (dyspnø, NYHA klasse II, III, IV eller angina pectoris)
 - patienter der får foretaget koronararteriebypassoperation med graft (CABG) for koronararteriesygdom eller anden klap- eller aortakirurgi
 - asymptomatiske patienter med
 - venstre ventrikels uddrivningsfraktion (LVEF) i hvile på 50 % eller derunder
 - svær dilatation af venstre ventrikel (LV):
 - slutdiastolisk dimension over 70 mm eller slutsystolisk dimension (end-systolic dimension = ESD) over 50 mm
- uanset sværhedsgraden af aortainsufficiens:
 - patienter som har aortarodsygdom med en maksimal aortadiameter på
 - 45 mm eller derover for patienter med Marfans syndrom
 - 50 mm eller derover for patienter med tofligede klapper - medfører aortarodudskiftning med eller uden en klapudskiftning/-udbedring
 - 55 mm eller derover for andre patienter

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

11 Overvej koronararteriografi/ hjertekaterisation

Quick info:

Koronararteriografi(KAG)/ hjertekaterisation overvejes:

- hos alle over 40 år med henblik på vurdering for koronararteriesygdom
- ved risikofaktorer
 - vaskulære risikofaktorer
 - tidligere iskæmiske hændelser
 - angina pectoris
- ved diskrepans mellem klinisk bestemmelse af sværhedsgrad og ekkokardiografiske fund kan hjertekaterisation eller MR overvejes

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

12 Hjertekonference

Quick info:

Ved forventning om behov for revaskularisering eller operation for hjerteklapsygdom afholdes en multidisciplinær hjertekonference. Grundstammen i hjertekonferencen er sædvanligvis kardiolog og thoraxkirurg samt eventuelt anæstesiolog. Andre specialer deltager ved behov.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

13 Forløbstid for kirurgisk behandling

Locally reviewed: 13-Oct-2009 Due for review: 13-Apr-2011 Printed on: 25-Jan-2010 © Map of Medicine Ltd

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Quick info:

Den samlede forløbstid fra den primære ekkokardiografi er udført til patienten opereres er maksimalt 21 hverdage.

Forløbstid fra den primære ekkokardiografi er udført til den sekundære udredning begynder - bør ikke overstige 7 hverdage.

Forløbstid fra start på den sekundære udredningsfase og til operationsdato må maksimalt være 14 hverdage.

Patienten ses og eventuelt behandles af tandlæge inden operationen. Erfaringsmæssigt er der behov for ca. 7 hverdage til at få gennemført dette.

Der kan, afhængig af patientens situation, være behov for fleksibilitet i mellem de enkelte deltidere – det er den samlede forløbstid, der er væsentlig at overholde. Patienten kan til enhver tid ønske sig betænkningstid og kan have behov for tid til at vænne sig til tanken om hjertekirurgi. Det vides, at hjertet kan tage skade af for lang ventetid på klapkirurgi, men der findes ingen undersøgelser, der klart viser hvor lang ventetid, der maksimalt må være inden operation.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

14 Kirurgisk behandling

Quick info:

- Aortaklapudskiftning

Andre kirurgiske muligheder omfatter:

- rekonstruktion af aortaklap
- udskiftning af aortarod
- udskiftning af aortaklap med autolog pulmonalklap (Ross-operation)

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

15 Ikke-kirurgisk behandling

Quick info:

Hvis der ved hjertekonference ikke findes indikation for operation, følges patienten som angivet.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

16 Tandlægevurdering før operation

Quick info:

Formålet med tandlægeundersøgelsen er at sikre, at patienten ikke har betændelse i tandrødderne, som efter indoperation af en kunstig hjerteklap evt. kan sprede sig til denne.

Hvis tandlægen finder tegn på infektion skal denne behandles inden kirurgi – ofte ved tandekstraktion.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

17 Opfølgning

Quick info:

Hvis der ikke aktuelt er indikation for kirurgi, skal patienten følges med klinisk og ekkokardiografisk kontrol

Kontrolintervaller ved aortainsufficiens

- svær: hver 3-6 mdr
- moderat: hver 6-12 mdr
- let: hver 1-2 år

Patienten skal informeres om at henvende sig ved symptomer.

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

18 Patientundervisning

Quick info:

Overvej at tilbyde vejledning og rådgivning med hensyn til:

- fysisk aktivitet på et passende niveau:
 - patienter skal undgå kraftig sportsaktivitet og anden fysisk aktivitet, når der er begrænset kardiell reserve og/eller dysfunktion af venstre ventrikel
- seksuel aktivitet:
 - frygt for pludselig død kan medføre nedsat seksuel aktivitet
 - hjertefrekvensen under samleje er lig de hjertefrekvenser, der ses i dagligdagen
 - beroligende udtalelser er hensigtsmæssige
- motorkøretøj:
 - asymptomatiske patienter uden andre diskvalificerende tilstande må køre bil eller motorcykel efter kirurgi
- drøft passende tidspunkter for tilbagevenden til normale aktiviteter og/eller arbejde
- spørg ind til psykiske symptomer og stress, som er almindeligt hos personer med hjerteklapsygdom – henvis til relevante hjælpemidler

19 Medicinsk efterbehandling

Quick info:

Overvej:

- antibiotisk profylakse skal tilbydes til patienter med en protetisk klap
- behandl arytmier som relevant
- overvej behandling af komorbiditet, hjerteinsufficiens, nedsat funktion af venstre ventrikel (LV) og atrieflimren
- evt antikoagulantia (AK) behandling

Referencer:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

[Guideline for infectious endocarditis](#), European Society of Cardiology

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

20 Rehabilitering

Quick info:

Alle hjerteklapopererede patienter bør vurderes med henblik på behov for hjerterehabilitering

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

I mangel af nationale retningslinjer for hjerteklapopererede patienter, følges Dansk Kardiologisk Selskabs Holdningspapir "fysisk træning ved iskæmisk hjertesygdom og kronisk hjerterinsufficiens", oktober 2008.

Fysisk genoptræning

- Specialiseret genoptræning påbegyndes 4-6 uger efter operationen og forløber over 8 -12 uger på hjertehold m.h.p. konditionstræning, styrketræning og almindeligt vedligehold samt forebyggelse af operationsrelaterede gener
- Anbefales fulgt op af 6-8 ugers træning i kommunalt regi

Sygdomsspecifik patientuddannelse

- Patienter undervises og vejledes specifikt i endokarditprofylakse samt AK-behandling.

Generel patientuddannelse

- Formålet hermed er at lære patienten at håndtere problemer der følger af at leve med en kronisk sygdom.

Ved udskrivelse fra hospital/henvisning til rehabilitering udarbejdes en genoptræningsplan. I rehabilitering af hjertepatienter indgår fysisk genoptræning. Genoptræningsplanen skal være skriftlig, udarbejdes i samarbejde med patienten og sendes til patientens bopælskommune.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab,

<http://www.cardio.dk/sw13308.asp>

21 Opfølgning efter kirurgisk behandling

Quick info:

Formålet med klinisk kontrol efter hjerteklapoperation er:

- at påvise eventuel dysfunktion ved den behandlede/kunstige hjerteklap
- at følge anden eventuel kardiell komorbiditet
- at optimere den medicinske behandling – herunder AK-behandling
- at sikre at råd om endokarditisprofylakse er forstået herunder tandhygiejne
- at sørge for at patienten er velinformeret om sin sygdom og mulige komplikationer
- evt. ekkokardiografi med henblik på vurdering af funktionen af venstre ventrikels klap og andre klapper

Referencer:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

Butchart EG, Gohlke-Barwolf C, Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.

IMPORTANT NOTE

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Key Dates

Due for review: 13-Apr-2011

Locally reviewed: 13-Oct-2009, by Denmark

Updated: 13-Oct-2009

Evidence summary for Aortainsufficiens

The pathway is consistent with the following quality-appraised guidelines (1, 7, 8, 2). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Oct-2009

Evidence grades:

-  Intervention node supported by level 1 guidelines or systematic reviews
-  Intervention node supported by level 2 guidelines
-  Intervention node based on expert clinical opinion
-  Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Graded node titles that appear on this page	Evidence grade	Reference IDs
Aortainsufficiens		10, 2
Symptomer		10, 2
Undersøgelser		10, 2, 3, 4
Kronisk aortainsufficiens		10, 2, 3, 4
Overvej koronararteriografi/ hjertekaterisation		10, 2
Akut svær aortainsufficiens		10, 2, 3, 4
Overvej akut operation		10, 2, 5
Vurdering af sværhedsgrad		10, 2, 3, 4
Medicinsk behandling		10, 2
Indikationer for kirurgi		10, 2
Opfølgning efter kirurgisk behandling		1, 9
Medicinsk efterbehandling		10, 9, 6
Hjertekonference		9
Ikke-kirurgisk behandling		9
Opfølgning		2
Tandlægevurdering før operation		9
Forløbstid for kirurgisk behandling		9
Rehabilitering		2, 9
Kirurgisk behandling		10, 2

References

This is a list of all the references that have passed critical appraisal for use in the pathway Hjerteklapsygdom

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Aortainsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

ID Reference

- 1 Butchart EG Gohlke-Barwolf C Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.
- 2 Dansk Cardiologisk Selskab (DCS). National behandlingsvejledning for hjerteklapsygdom NBV 2009. København: DCS; 2009.
<http://www.cardio.dk/sw13285.asp>
- 3 Dansk Cardiologisk Selskab (DCS). Retningslinjer vedr. ekkokardiografi. København: DCS; 2009.
<http://ekkokardiografi.dk>
- 4 Dansk Cardiologisk Selskab (DCS). Anbefaling vedr. ekkokardiografi. København: DCS; 2009.
<http://www.cardio.dk/sw80.asp>
- 5 Dansk Cardiologisk Selskab (DCS). Vejledning for præ- og interhospital transport af hjertepatienter. 2009.
<http://www.cardio.dk/sw13281.asp>
- 6 European Society of Cardiology (ESC). Guidelines on the prevention, diagnosis, and treatment of infective endocarditis. Eur Heart J 2009; 30: 2369-2413.
- 7 National Institute for Health and Clinical Excellence (NICE). Prophylaxis against infective endocarditis. Clinical guideline 64. London: NICE; 2008.
- 8 Nishimura RA, Carabello BA, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused update on infective endocarditis. Circulation 2008; 118: 887-896.
<http://www.ncbi.nlm.nih.gov/pubmed/18663090?dopt=Citation>
- 9 Sundhedsstyrelsen. Pakkeforløb for hjerteklapsygdom og hjertesvigt. København: Sundhedsstyrelsen; 2009.
<http://www.cardio.dk/sw80.asp>
- 10 Vahanian A Baumgartner H Bax J et al. Guidelines on the management of valvular heart disease. Eur Heart J 2007; 28: 230-268.

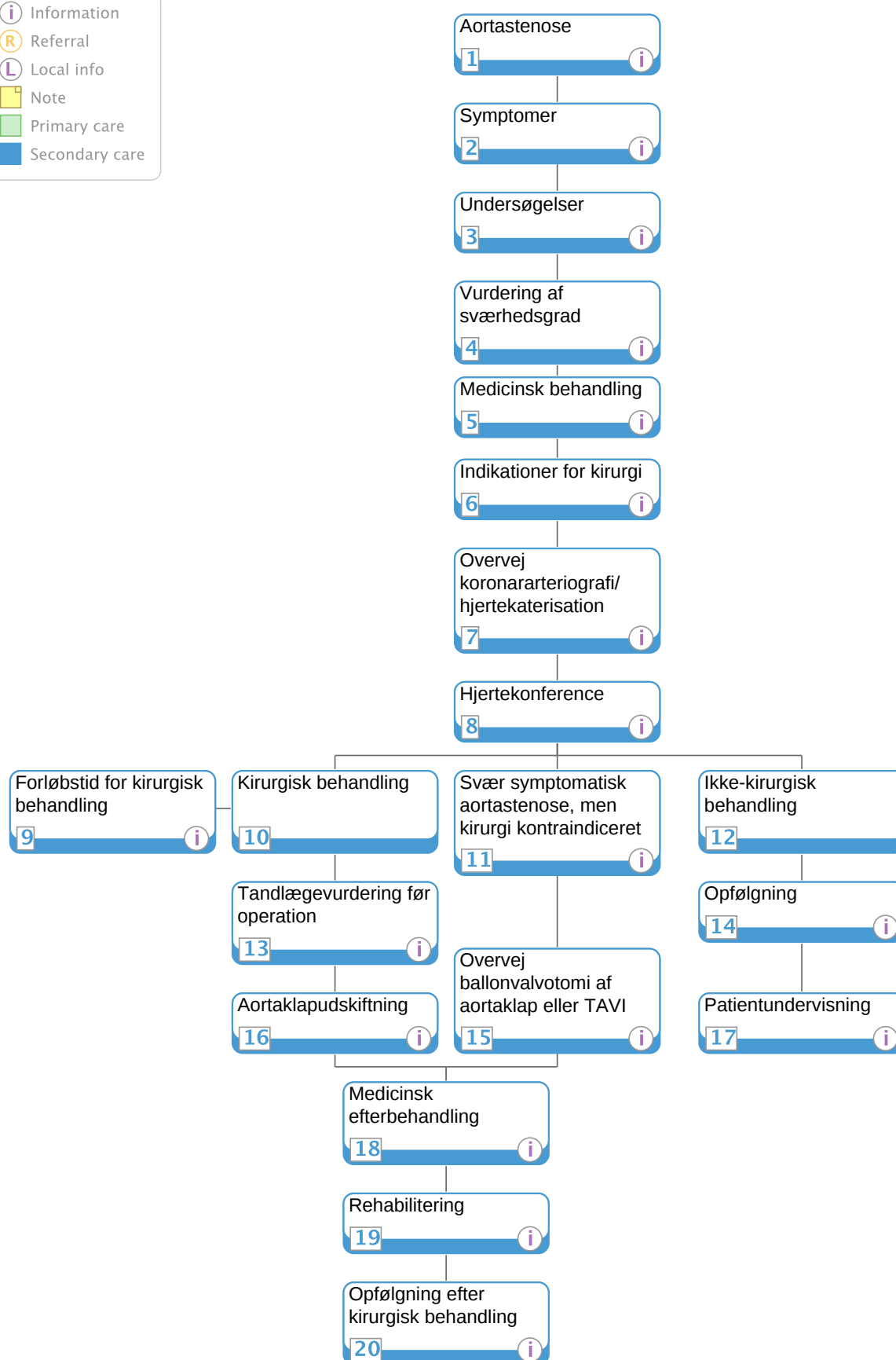
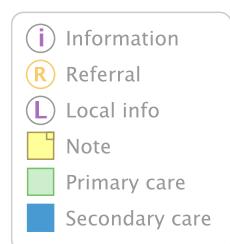
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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom



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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

1 Aortastenose

Quick info:

Årsager:

- degenerativ kalcifikation
- kongenit bicuspid aortaklap
- reumatisk sygdom

Differentialdiagnoserne omfatter:

- hypertrofisk kardiomyopati
- kongenitte abnormiteter
- mitralinsufficiens

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

2 Symptomer

Quick info:

Symptomer:

- funktionsdyspnø
- angina pectoris
- anstrengelsesudløst synkope

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

3 Undersøgelser

Quick info:

Overvej:

- ekkokardiografi (vigtigst)
- røntgenundersøgelse af thorax
- elektrokardiografi (EKG)
 - venstre ventrikel (LV) hypertrofi
 - arytmier
- koronarangiografi, KAG/hjertekaterisation for at:
 - udelukke ledsagende koronararteriesygdom
 - vurdér sværhedsgraden, hvis der er konflikt mellem klinisk vurdering og ekkokardiografisk vurdering

Andre karakteristika:

- systolisk uddrivningsmislyd med svækket 2. hjertelyd

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

4 Vurdering af sværhedsgrad

Quick info:

Sværhedsgrad af aortastenose opdeles i:

- svær: aortaklapareal (AVA) $<1 \text{ cm}^2$
- moderat: aortaklapareal (AVA) $1-1.5 \text{ cm}^2$
- let: aortaklapareal (AVA) $>1.5 \text{ cm}^2$

Sværhedsgrad af aortastenose vurderes på forskellige måder:

- sværhedsgraden vurderes ved direkte opmåling af klaparealet med planimetri samt dopplerundersøgelse transøsofagal ekkokardiografi ved
 - dårlige indblikforhold

Gå til <http://ekkokardiografi.dk> for flere detaljer.

Referencer:

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

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5 Medicinsk behandling

Quick info:

Overvej:

- behandl hjerteinsufficiens, atrieflimren og tromboembolisk risiko som relevant
- statiner har ikke bevist deres værdi til forebyggelse af progression af klapsygdom

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

6 Indikationer for kirurgi

Quick info:

Beslutningen om hvornår der skal henvises til kirurgi baseres overvejende på forekomst af symptomer

- konservativ behandling anbefales til asymptomatiske patienter

Aortaklapudskiftning (AVR) er indiceret hos:

- symptomatiske patienter med aortaklapstenose med aortaklapareal (AVA) $<1 \text{ cm}^2$
- patienter med aortaklapstenose AVA $<1,5 \text{ cm}^2$, der får foretaget koronararteriebypassoperation, operation på aorta ascendens eller en anden hjerteoperation
- asymptomatiske patienter med aortaklapstenose med AVA $<1 \text{ cm}^2$ og
 - systolisk dysfunktion af venstre ventrikel (LV), medmindre den er forårsaget af anden årsag, svær LV hypertrofi ($>17 \text{ mm}$) eller atrieflimren
 - abnorm arbejdstest, der udviser symptomer ved anstrengelse
 - fald i blodtryk eller komplekse arrytmier under arbejde

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

7 Overvej koronararteriografi/ hjertekaterisation

Quick info:

Koronararteriografi (KAG)/ hjertekaterisation overvejes:

- hos alle over 40 år med henblik på vurdering for koronararteriesygdom
- ved risikofaktorer
 - vaskulære risikofaktorer
 - tidligere iskæmiske hændelser
 - angina pectoris
- ved diskrepans mellem klinisk bestemmelse af sværhedsgrad og ekkokardiografiske fund kan hjertekaterisation overvejes

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

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8 Hjertekonference

Quick info:

Ved forventning om revaskularisering eller operation for hjerteklapsygdom afholdes en multidisciplinær hjertekonference.

Grundstammen i hjertekonferencen er sædvanligvis kardiolog og thoraxkirurg samt eventuelt anæstesiolog. Andre specialer deltager ved behov.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

9 Forløbstid for kirurgisk behandling

Quick info:

Den samlede forløbstid fra den primære ekkokardiografi er udført til patienten opereres er maksimalt 21 hverdage.

Forløbstid fra den primære ekkokardiografi er udført til den sekundære udredning begynder - bør ikke overstige 7 hverdage.

Forløbstid fra start på den sekundære udredningsfase og til operationsdato må maksimalt være 14 hverdage.

Patienten ses og eventuelt behandles af tandlæge inden operationen. Erfaringsmæssigt er der behov for ca. 7 hverdage til at få gennemført dette.

Der kan, afhængig af patientens situation, være behov for fleksibilitet i mellem de enkelte deltidere – det er den samlede forløbstid, der er væsentlig at overholde. Patienten kan til enhver tid ønske sig betænkningstid og kan have behov for tid til at vænne sig til tanken om hjertekirurgi. Det vides, at hjertet kan tage skade af for lang ventetid på klapkirurgi, men der findes ingen undersøgelser, der klart viser hvor lang ventetid, der maksimalt må være inden operation.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

11 Svær symptomatisk aortastenose, men kirurgi kontraindiceret

Quick info:

Kontraindikationer kan fx være:

- svær lungesygdom
- porcelænsaorta
- kronisk påvirket almen tilstand

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

13 Tandlæge vurdering før operation

Quick info:

Formålet med tandlægeundersøgelsen er at sikre, at patienten ikke har betændelse i tandrødderne, som efter indoperation af en kunstig hjerteklap evt. kan sprede sig til denne.

Hvis tandlægen finder tegn på infektion skal denne behandles inden kirurgi – ofte ved tandekstraktion.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

14 Opfølgning

Quick info:

Hvis der ikke aktuelt er indikation for kirurgi, skal patienten følges med klinisk og ekkokardiografisk kontrol

Kontrolintervaller ved aortastenose

- svær: hver 6-12 mdr
- moderat: hver 1-2 år
- let: hver 2-5 år

Patienten skal informeres om at henvende sig ved symptomer.

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

15 Overvej ballonvalvotomi af aortaklap eller TAVI

Quick info:

Overvej ballonvalvulotomi af aortaklap hos ikke-udvoksede unge

Overvej transkateter aortaklapimplantation (TAVI) hos højriskpatienter, som er uegnede til konventionel operation.

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

16 Aortaklapudskiftning

Quick info:

Beslutningen om hvornår der skal henvises til kirurgi baseres overvejende på forekomst af symptomer

- konservativ behandling anbefales til asymptomatiske patienter

Aortaklapudskiftning (AVR) er indiceret hos:

- symptomatiske patienter med aortaklapstenose med aortaklapareal (AVA) $< 1 \text{ cm}^2$
- patienter med aortaklapstenose AVA $< 1,5 \text{ cm}^2$, der får foretaget koronararteriebypassoperation, operation på aorta ascendens eller en anden hjerteoperation
- asymptomatiske patienter med aortaklapstenose med AVA $< 1 \text{ cm}^2$ og
 - systolisk dysfunktion af venstre ventrikel (LV), medmindre den er forårsaget af anden årsag, svær LV hypertrofi ($> 17 \text{ mm}$) eller atrieflimren
 - abnorm arbejdstest, der udviser symptomer ved anstrengelse
 - fald i blodtryk eller komplekse arrytmier under arbejde

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

17 Patientundervisning

Quick info:

Overvej at tilbyde vejledning og rådgivning med hensyn til:

- fysisk aktivitet på et passende niveau:
 - patienter skal undgå kraftig sportsaktivitet og anden fysisk aktivitet, når der er begrænset kardiell reserve og/eller dysfunktion af venstre ventrikel
- seksuel aktivitet:
 - frygt for pludselig død kan medføre nedsat seksuel aktivitet
 - hjertefrekvensen under samleje er lig de hjertefrekvenser, der ses i dagligdagen
 - beroligende udtalelser er hensigtsmæssige
- motorkøretøj:
 - asymptomatiske patienter uden andre diskvalificerende tilstande må køre bil eller motorcykel efter kirurgi
- drøft passende tidspunkter for tilbagevenden til normale aktiviteter og/eller arbejde
- spørg ind til psykiske symptomer og stress, som er almindeligt hos personer med hjerteklapsygdom – henvis til relevante hjælpemidler

18 Medicinsk efterbehandling

Quick info:

Overvej:

- endokardit profylakse til patienter med en protetisk klap
- behandl arytmier som relevant
- behandling af komorbiditeter, hjertheinsufficiens, nedsat funktion af venstre ventrikel (LV) og atrieflimren separat
- antikoagulantia (AK) behandling
 - ved biologisk aortaklap 0-3 mdr
 - ved mekanisk aortaklap livslang

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

19 Rehabilitering

Quick info:

Alle hjerteklapopererede patienter bør vurderes med henblik på behov for hjerterehabilitering

I mangel af nationale retningslinjer for hjerteklapopererede patienter, følges Dansk Cardiologisk Selskabs Holdningspapir "fysisk træning ved iskæmisk hjertesygdom og kronisk hjertheinsufficiens", oktober 2008.

Fysisk genoptræning

- Specialiseret genoptræning påbegyndes 4-6 uger efter operationen og forløber over 8 -12 uger på hjertehold m.h.p. konditionstræning, styrketræning og almindeligt vedligehold samt forebyggelse af operationsrelaterede gener
- Anbefales fulgt op af 6-8 ugers træning i kommunalt regi

Sygdomsspecifik patientuddannelse

- Patienter undervises og vejledes specifikt i endokarditprofylakse samt AK-behandling.

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

Generel patientuddannelse

- Formålet hermed er at lære patienten at håndtere problemer der følger af at leve med en kronisk sygdom.

Ved udskrivelse fra hospital/henvisning til rehabilitering udarbejdes en genoptræningsplan. I rehabilitering af hjertepatienter indgår fysisk genoptræning. Genoptræningsplanen skal være skriftlig, udarbejdes i samarbejde med patienten og sendes til patientens bopælskommune.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab,

<http://www.cardio.dk/sw13308.asp>

20 Opfølgning efter kirurgisk behandling

Quick info:

Formålet med klinisk kontrol efter hjerteklapoperation er:

- at påvise eventuel dysfunktion ved den behandlede/kunstige hjerteklap
- at følge anden eventuel kardiell komorbiditet
- at optimere den medicinske behandling – herunder AK-behandling
- at sikre at råd om endokarditisprofylakse er forstået herunder tandhygiejne
- at sørge for at patienten er velinformeret om sin sygdom og mulige komplikationer
- evt. ekkokardiografi med henblik på vurdering af funktionen af venstre ventrikels klap og andre klapper

Referencer:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

Butchart EG, Gohlke-Barwolf C, Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.

IMPORTANT NOTE

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

Key Dates

Due for review: 13-Apr-2011

Locally reviewed: 13-Oct-2009, by Denmark

Updated: 13-Oct-2009

Evidence summary for Aortastenose

The pathway is consistent with the following quality-appraised guidelines (1, 7, 8, 2). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Oct-2009

Evidence grades:

-  Intervention node supported by level 1 guidelines or systematic reviews
-  Intervention node supported by level 2 guidelines
-  Intervention node based on expert clinical opinion
-  Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page	Evidence grade	Reference IDs
Aortastenose		10, 2
Symptomer		8, 2
Overvej ballonvalvotomi af aortaklap eller TAVI		10, 2
Undersøgelser		10, 2, 3, 4
Vurdering af sværhedsgrad		10, 2, 3, 4
Indikationer for kirurgi		10, 2
Medicinsk behandling		10, 2
Aortaklapudskiftning		10, 2
Opfølgning efter kirurgisk behandling		1, 9
Medicinsk efterbehandling		10, 2
Tandlægevurdering før operation		9
Overvej koronararteriografi/ hjertekaterisation		10, 2
Hjertekonference		9
Rehabilitering		10, 2
Forløbstid for kirurgisk behandling		9

References

This is a list of all the references that have passed critical appraisal for use in the pathway Hjerteklapsygdom

ID Reference

- 1 Butchart EG Gohlke-Barwolf C Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.
- 2 Dansk Cardiologisk Selskab (DCS). National behandlingsvejledning for hjerteklapsygdom NBV 2009. København: DCS; 2009.
<http://www.cardio.dk/sw13285.asp>
- 3 Dansk Cardiologisk Selskab (DCS). Retningslinjer vedr. ekkokardiografi. København: DCS; 2009.

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Aortastenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

ID Reference

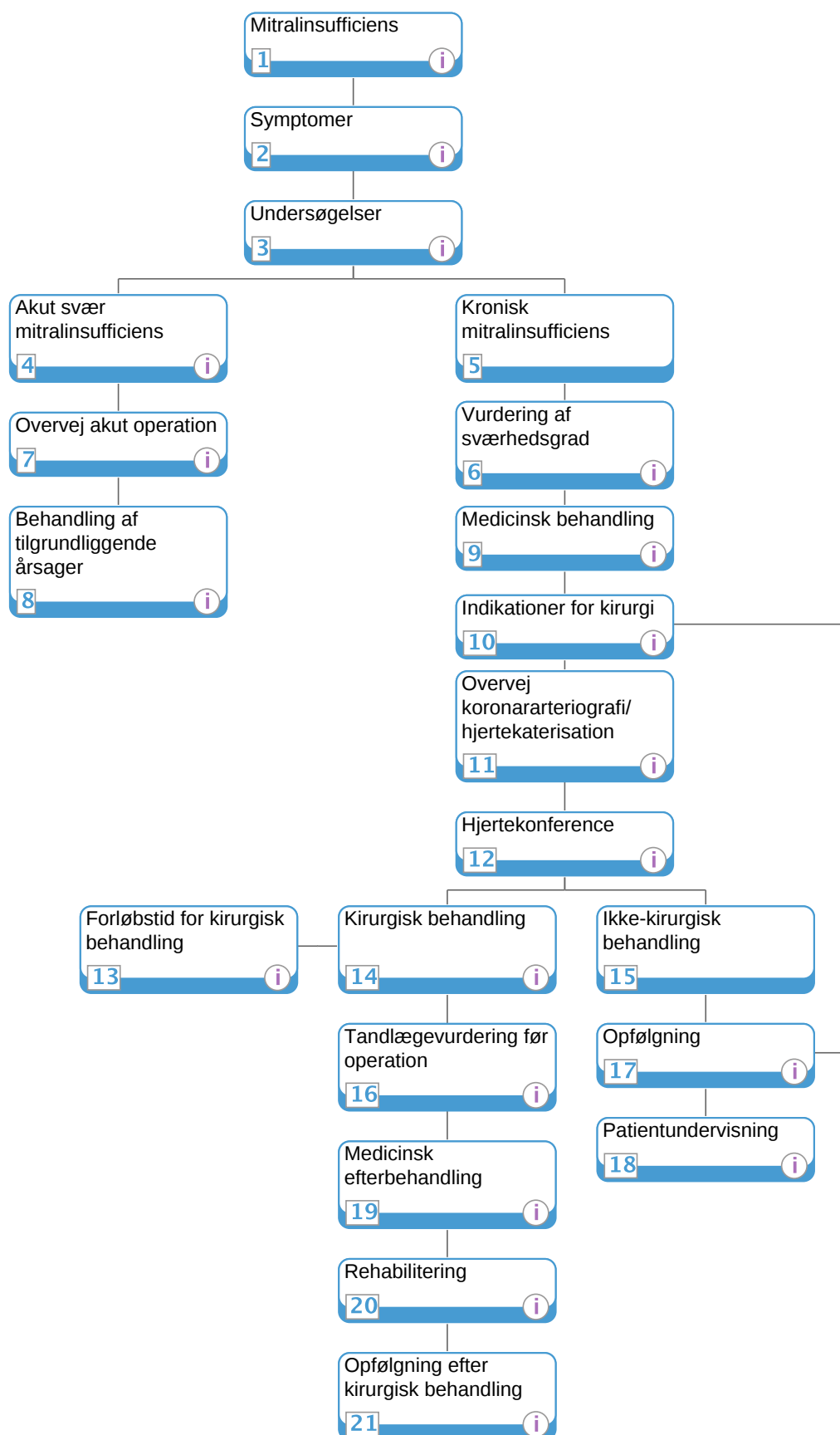
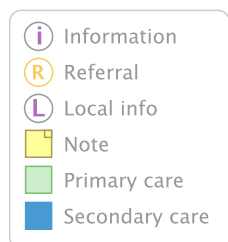
- <http://ekkokardiografi.dk>
- 4 Dansk Cardiologisk Selskab (DCS). Anbefaling vedr. ekkokardiografi. København: DCS; 2009.
<http://www.cardio.dk/sw80.asp>
- 5 Dansk Cardiologisk Selskab (DCS). Vejledning for præ- og interhospital transport af hjertepatienter. 2009.
<http://www.cardio.dk/sw13281.asp>
- 6 European Society of Cardiology (ESC). Guidelines on the prevention, diagnosis, and treatment of infective endocarditis. Eur Heart J 2009; 30: 2369-2413.
- 7 National Institute for Health and Clinical Excellence (NICE). Prophylaxis against infective endocarditis. Clinical guideline 64. London: NICE; 2008.
- 8 Nishimura RA, Carabello BA, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused update on infective endocarditis. Circulation 2008; 118: 887-896.
<http://www.ncbi.nlm.nih.gov/pubmed/18663090?dopt=Citation>
- 9 Sundhedsstyrelsen. Pakkeforløb for hjerteklapsygdom og hjertesvigt. København: Sundhedsstyrelsen; 2009.
<http://www.cardio.dk/sw80.asp>
- 10 Vahanian A Baumgartner H Bax J et al. Guidelines on the management of valvular heart disease. Eur Heart J 2007; 28: 230-268.

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerterklapssygdom



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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

1 Mitralinsufficiens

Quick info:

Årsager:

- mitralprolaps (myksomatøs degeneration)
- funktionel mitralinsufficiens
- reumatisk hjertesygdom
- bindevævssygdomme, f.eks. Marfans syndrom
- infektiøs endokardit (forårsager oftest akut mitralinsufficiens)
- anuluskalcifikation eller -dilatation
- komplikation til koronar hjertesygdom

Differentialdiagnoserne omfatter:

- aortastenose
- ventrikelseptumdefekt

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

2 Symptomer

Quick info:

Symptomer

- dyspnø
- palpitationer

3 Undersøgelser

Quick info:

Overvej:

- ekkokardiografi
- røntgenundersøgelse af thorax
 - lungeødem og/eller pleuraeffusion
 - forstørret venstre atrium
- elektrokardiografi (EKG)
 - normal sinusrytme
 - arytmier (oftest atrieflimren) (mere almindelig ved kronisk tilstand)
- transøsofageal ekkokardiografi til vurdering af egnethed til klapudbedring

Andre karakteristika:

- systolisk mislyd

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

4 Akut svær mitralinsufficiens

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Quick info:

- akut mitralinsufficiens kan skyldes
 - infektiøs endokardit
 - myokardieinfarkt
 - akut chordaruptur
- hos normotensiv patient, overvej brug af nitroprussid for at reducere lungestase og øge forward output
- overvej kombination af nitroprussid og inotropikum hos hypotensive patienter

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>
Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

6 Vurdering af sværhedsgrad

Quick info:

Sværhedsgrad af mitralinsufficiens opdeles i:

- svær: effektive regurgitationsorificium (ERO) >0,40 cm²
- moderat: effektive regurgitationsorificium (ERO) 0,20-0,40 cm²
- let: effektive regurgitationsorificium (ERO) <0,20 cm²

Sværhedsgraden af mitralinsufficiens vurderes på forskellige måder

- ekkokardiografisk vurdering af klapmorfologi, venstre ventrikels funktion og dimension
- insufficiens bedømmes med farve-Doppler. I enkelte tilfælde er det nødvendigt med supplerende transøsofageal ekkokardiografi

Gå til <http://ekkokardiografi.dk> for flere detaljer.

Referencer:

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

7 Overvej akut operation

Quick info:

Akut operation af mitralklap er nødvendig, hvis der er svære kardielle symptomer

- overvej præoperativ koronarangiografi (KAG)
- patienter kan have behov for ventilation og ballonpumpe
- i tilfælde af akut iskæmisk mitralinsufficiens, overvej koronararteriebypassoperation med graft sammen med mitralklapoperation

Når patienten skal henvises til akut operation tages telefonisk kontakt til opererende afdeling.

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

8 Behandling af tilgrundliggende årsager

Quick info:

- akut insufficiens kan skyldes infektiøs endokardit, myokardieinfarkt eller akut chordaruptur

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

- overvej passende antibiotisk behandling for infektiøs endokardit
- behandl myokardieinfarkt (MI; se "myokardieinfarkt"-diagrammet)

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

9 Medicinsk behandling

Quick info:

Overvej:

- diuretika
- digitalis
- calciumkanal
- betablokkere for
- behandling af atrieflimren , hjerteinsufficiens og tromboembolisk risiko

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

10 Indikationer for kirurgi

Quick info:

Operation er indiceret ved svær mitralklapinsufficiens og LVEF > 30% for følgende grupper:

- ved kardielle symptomer
- asymptomatiske patienter med
 - dysfunktion af venstre ventrikel (ESD over 45 mm og/eller LVEF under 60 %)
 - atrieflimren eller pulmonal hypertension
 - svær insufficiens af klap velegnet til plastik

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

11 Overvej koronararteriografi/ hjertekaterisation

Quick info:

Koronararteriografi (KAG)/ hjertekaterisation overvejes:

- hos alle over 40 år med henblik på vurdering for koronararteriesygdom
- ved risikofaktorer
 - vaskulære risikofaktorer
 - tidligere iskæmiske hændelser
 - angina pectoris

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

12 Hjertekonference

Quick info:

Ved forventning om revaskularisering eller operation for hjerteklapsygdom afholdes en multidisciplinær hjertekonference. Grundstammen i hjertekonferencen er sædvanligvis kardiolog og thoraxkirurg samt eventuelt anæstesiolog. Andre specialer deltager ved behov.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

13 Forløbstid for kirurgisk behandling

Quick info:

Den samlede forløbstid fra den primære ekkokardiografi er udført til patienten opereres er 21 hverdage.

Forløbstid fra den primære ekkokardiografi er udført til den sekundære udredning begynder - bør ikke overstige 7 hverdage.

Forløbstid fra start på den sekundære udredningsfase og til operationsdato må maksimalt være 14 hverdage.

Patienten ses og eventuelt behandles af tandlæge inden operationen. Erfaringsmæssigt er der behov for ca. 7 hverdage til at få gennemført dette.

Der kan, afhængig af patientens situation, være behov for fleksibilitet i mellem de enkelte deltidere – det er den samlede forløbstid, der er væsentlig at overholde. Patienten kan til enhver tid ønske sig betænkningstid og kan have behov for tid til at vænne sig til tanken om hjertekirurgi. Det vides, at hjertet kan tage skade af for lang ventetid på klapkirurgi, men der findes ingen undersøgelser, der klart viser hvor lang ventetid, der maksimalt må være inden operation.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

14 Kirurgisk behandling

Quick info:

- overvej mitralklapsplastik som førstevalgskirurgi
 - kalcifikation af klap eller reumatisk involvering nedsætter chancen for vellykket mitralplastik
 - degenerativ sygdom behandles i reglen med mitralklapplastik.
 - svær mitralklapinsufficiens med baggrund i iskæmisk hjertesygdom kan ofte tilbydes mitralplastik
- mitralklapsubstitution
 - reumatisk mitralklapinsufficiens associeres hyppigt med stenose og behandles i reglen vha. mitralklapssubstitution

Reference:

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

16 Tandlægevurdering før operation

Quick info:

Formålet med tandlægeundersøgelsen er at sikre, at patienten ikke har betændelse itandrødderne, som efter indoperation af en kunstig hjerteklap evt. kan sprede sig til denne.

Hvis tandlægen finder tegn på infektion skal denne behandles inden kirurgi – ofte ved tandekstraktion.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

17 Opfølgning

Quick info:

Hvis der ikke aktuelt er indikation for kirurgi, skal patienten følges med klinisk og ekkokardiografisk kontrol

Kontrolintervaller ved mitralinsufficiens

- Svær: hver 3-6 mdr
- Moderalt: hver 6-12 mdr
- Let: hver 1-2 år

Patienten skal informeres om at henvende sig ved symptomer.

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

18 Patientundervisning

Quick info:

Overvej at tilbyde vejledning og rådgivning med hensyn til:

- fysisk aktivitet på et passende niveau:
 - patienter skal undgå kraftig sportsaktivitet og anden fysisk aktivitet, når der er begrænset kardiell reserve og/eller dysfunktion af venstre ventrikel
- seksuel aktivitet:
 - frygt for pludselig død kan medføre nedsat seksuel aktivitet
 - hjertefrekvensen under samleje er lig de hjertefrekvenser, der ses i dagligdagen
 - beroligende udtalelser er hensigtsmæssige
- motorkøretøj:
 - asymptomatiske patienter uden andre diskvalificerende tilstande må køre bil eller motorcykel efter kirurgi
- drøft passende tidspunkter for tilbagevenden til normale aktiviteter og/eller arbejde
- spørg ind til psykiske symptomer og stress, som er almindeligt hos personer med hjerteklapsygdom – henvis til relevante hjælpemidler

19 Medicinsk efterbehandling

Quick info:

Overvej:

- endokardit profylakse til patienter med en protetisk klap
- behandling af arytmier som relevant
- behandling af komorbiditeter, hjerteinsufficiens, nedsat funktion af venstre ventrikel (LV) og atrieflimren separat
- antikoagulantia (AK) behandling
- ved biologisk mitralklap eller klapplastik 0-3 mdr
- ved mekanisk mitralklap livslang

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

Nishimura RA, Carabello BA, Faxon DP et al. ACC/AHA 2008 Guideline update on valvular heart disease: focused update on infective endocarditis. Circulation 2008; 118: 887-896.

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

National Institute for Health and Clinical Excellence (NICE). Prophylaxis against infective endocarditis. Clinical guideline 64. London, NICE; 2008.

20 Rehabilitering

Quick info:

Alle hjerteklapopererede patienter bør vurderes med henblik på behov for hjerterehabilitering

I mangel af nationale retningslinjer for hjerteklapopererede patienter, følges Dansk Kardiologisk Selskabs Holdningspapir "fysisk træning ved iskæmisk hjertesygdom og kronisk hjerterinsufficiens", oktober 2008.

Fysisk genoptræning

- Specialiseret genoptræning påbegyndes 4-6 uger efter operationen og forløber over 8 -12 uger på hjertehold m.h.p. konditionstræning, styrketræning og almindeligt vedligehold samt forebyggelse af operationsrelaterede gener
- Anbefales fulgt op af 6-8 ugers træning i kommunalt regi

Sygdomsspecifik patientuddannelse

- Patienter undervises og vejledes specifikt i endokarditprofylakse samt AK-behandling.

Generel patientuddannelse

- Formålet hermed er at lære patienten at håndtere problemer der følger af at leve med en kronisk sygdom.

Ved udskrivelse fra hospital/henvisning til rehabilitering udarbejdes en genoptræningsplan. I rehabilitering af hjertepatienter indgår fysisk genoptræning. Genoptræningsplanen skal være skriftlig, udarbejdes i samarbejde med patienten og sendes til patientens bopælskommune.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab,

<http://www.cardio.dk/sw13308.asp>

21 Opfølgning efter kirurgisk behandling

Quick info:

Formålet med klinisk kontrol efter hjerteklapoperation er:

- at påvise eventuel dysfunktion ved den behandlede/kunstige hjerteklap
- at følge anden eventuel kardiell komorbiditet
- at optimere den medicinske behandling – herunder AK-behandling
- at sikre at råd om endokarditprofylakse er forstået herunder tandhygiejne
- at sørge for at patienten er velinformeret om sin sygdom og mulige komplikationer
- evt. ekkokardiografi med henblik på vurdering af funktionen af venstre ventrikels klap og andre klapper

Referencer:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

Butchart EG, Gohlke-Barwolf C, Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

Key Dates

Due for review: 13-Apr-2011

Locally reviewed: 13-Oct-2009, by Denmark

Updated: 13-Oct-2009

Evidence summary for Mitralinsufficiens

The pathway is consistent with the following quality-appraised guidelines (2, 3, 9, [73]). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Oct-2009

Evidence grades:

-  Intervention node supported by level 1 guidelines or systematic reviews
-  Intervention node supported by level 2 guidelines
-  Intervention node based on expert clinical opinion
-  Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Mitralinsufficiens

Symptomer

Undersøgelser

Akut svær mitralinsufficiens

Overvej akut operation

Behandling af tilgrundliggende årsager

Vurdering af sværhedsgrad

Medicinsk behandling

Indikationer for kirurgi

Overvej koronararteriografi/ hjertekaterisation

Medicinsk efterbehandling

Opfølgning efter kirurgisk behandling

Hjertekonference

Opfølgning

Rehabilitering

Forløbstid for kirurgisk behandling

Tandlægeevaluering før operation

Evidence grade



































Reference IDs

10, 2

2, 3, 4

10, 2, 3, 4

10, 2

10, 2

10, 2

10, 2, 3, 4

10, 2

8, 2

8, 2

7, 8, 10, 2

1, 9

9

2

10, 9

9

9

References

This is a list of all the references that have passed critical appraisal for use in the pathway Hjerteklapsygdom

ID Reference

- 1 Butchart EG Gohlke-Barwolf C Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.

Locally reviewed: 13-Oct-2009 Due for review: 13-Apr-2011 Printed on: 25-Jan-2010 © Map of Medicine Ltd

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Mitralinsufficiens

- Danske forløb > Kardiologi > Hjerteklapsygdom

ID Reference

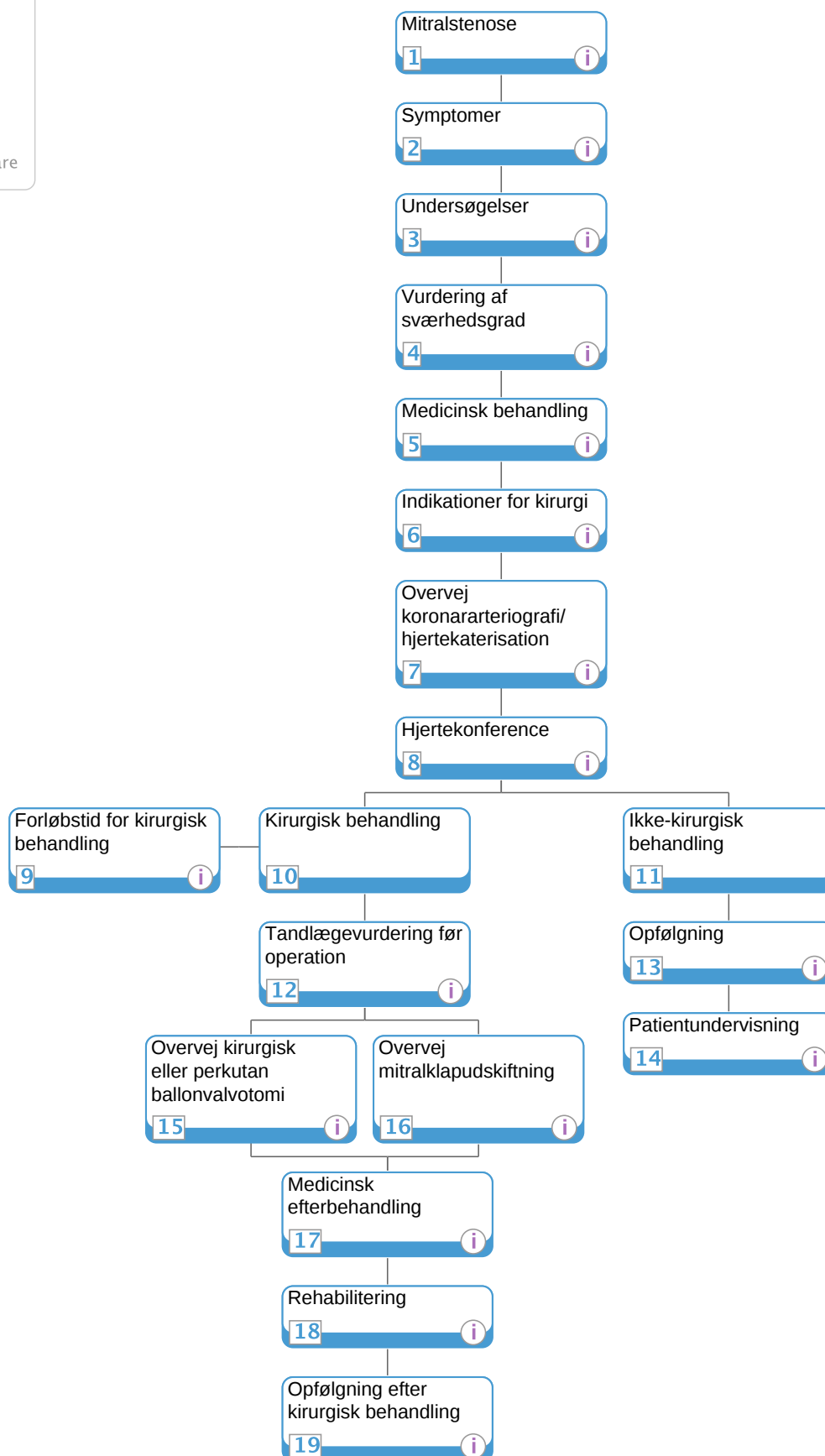
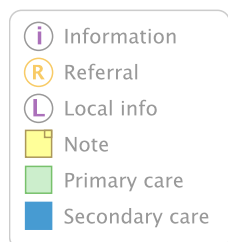
- 2 Dansk Cardiologisk Selskab (DCS). National behandlingsvejledning for hjerteklapsygdom NBV 2009. København: DCS; 2009.
<http://www.cardio.dk/sw13285.asp>
- 3 Dansk Cardiologisk Selskab (DCS). Retningslinjer vedr. ekkokardiografi. København: DCS; 2009.
<http://ekkokardiografi.dk>
- 4 Dansk Cardiologisk Selskab (DCS). Anbefaling vedr. ekkokardiografi. København: DCS; 2009.
<http://www.cardio.dk/sw80.asp>
- 5 Dansk Cardiologisk Selskab (DCS). Vejledning for præ- og interhospital transport af hjertepatienter. 2009.
<http://www.cardio.dk/sw13281.asp>
- 6 European Society of Cardiology (ESC). Guidelines on the prevention, diagnosis, and treatment of infective endocarditis. Eur Heart J 2009; 30: 2369-2413.
- 7 National Institute for Health and Clinical Excellence (NICE). Prophylaxis against infective endocarditis. Clinical guideline 64. London: NICE; 2008.
- 8 Nishimura RA, Carabello BA, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused update on infective endocarditis. Circulation 2008; 118: 887-896.
<http://www.ncbi.nlm.nih.gov/pubmed/18663090?dopt=Citation>
- 9 Sundhedsstyrelsen. Pakkeforløb for hjerteklapsygdom og hjertesvigt. København: Sundhedsstyrelsen; 2009.
<http://www.cardio.dk/sw80.asp>
- 10 Vahanian A Baumgartner H Bax J et al. Guidelines on the management of valvular heart disease. Eur Heart J 2007; 28: 230-268.

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom



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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

1 Mitralstenose

Quick info:

Årsager:

- primært gigtfeber (ofte uerkendt)

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

2 Symptomer

Quick info:

Symptomer:

- dyspnø
- palpitationer
- træthed
- emboliske fænomener
- ødemer
- hæmoptyser

3 Undersøgelser

Quick info:

Overvej:

- ekkokardiografi
 - reduceret mitralklapareal
 - fortykkede cuspides med nedsat mobilitet
 - subvalvulær sammenvoksning
 - kalcifikation
- elektrokardiografi (EKG)
- røntgenundersøgelse af thorax
- overvej koronarangiografi, KAG/hjertekaterisation for at:
 - udelukke ledsagende koronararteriesygdom
 - hvis der er konflikt mellem klinisk vurdering og ekkokardiografisk vurdering kan hjertekaterisation med fysisk belastning være relevant

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

4 Vurdering af sværhedsgrad

Quick info:

Sværhedsgrad af mitralstenose opdeles i:

- svær: mitralklapareal – under 1,0 cm²

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

- moderat: mitralklapareal – 1,0-1,5 cm²
- let: mitralklapareal – 1,5-2,5cm²

Sværhedsgrad af mitralstenose vurderes på forskellige måder :

- ved direkte opmåling af klaparealet med planimetri samt dopplerundersøgelse af trykhalveringstiden
- transøsofagal ekkokardiografi ved
 - dårlige indblikforhold
 - undersøgelse for tromber i venstre atrium forud for ballonvalvotomi

Gå til <http://ekkokardiografi.dk> for flere detaljer.

Referencer:

Dansk Cardiologisk Selskabs anbefaling vedr. ekkokardiografi <http://www.cardio.dk/sw80.asp>

Dansk Cardiologisk Selskabs retningslinjer vedr. ekkokardiografi <http://ekkokardiografi.dk>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

5 Medicinsk behandling

Quick info:

Overvej:

- ved anstrengelsesrelaterede symptomer kan betablokkere eller calciumkanalblokkere forsøges
- behandling af atrieflimren med frekvensregulering og antikoagulation
- asymptomatiske patienter med mitralstenose i sinusrytme behandles ikke
- antikoagulation bør overvejes ved sinusrytme og svær mitralstenose samt stort venstre atrium

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

6 Indikationer for kirurgi

Quick info:

Symptomatiske patienter:

- NYHA II-III og klapareal max. ca. 1,5 cm²
- NYHA II og klapareal max. ca. 1,5 cm², når klappen er egnet til ballondilatation
- nyopstået atrieflimmer eller emboli

Asymptomatiske patienter:

- ingen intervention

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

7 Overvej koronararteriografi/ hjertekaterisation

Quick info:

Koronararteriografi (KAG)/ hjertekaterisation overvejes:

- hos alle over 40 år med henblik på vurdering for koronararteriesygdom
- ved risikofaktorer

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

- vaskulære risikofaktorer
- tidligere iskæmiske hændelser
- angina pectoris

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>
Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

8 Hjertekonference

Quick info:

Ved forventning om behov for revaskularisering eller operation for hjerteklapsygdom afholdes en multidisciplinær hjertekonference. Grundstammen i hjertekonferencen er sædvanligvis kardiolog og thoraxkirurg samt eventuelt anæstesiolog. Andre specialer deltager ved behov.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009
<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

9 Forløbstid for kirurgisk behandling

Quick info:

Den samlede forløbstid fra den primære ekkokardiografi er udført til patienten opereres er maksimalt 21 hverdage.
Forløbstid fra den primære ekkokardiografi er udført til den sekundære udredning begynder - bør ikke overstige 7 hverdage.
Forløbstid fra start på den sekundære udredningsfase og til operationsdato må maksimalt være 14 hverdage.
Patienten ses og eventuelt behandles af tandlæge inden operationen. Erfaringsmæssigt er der behov for ca. 7 hverdage til at få gennemført dette.
Der kan, afhængig af patientens situation, være behov for fleksibilitet i mellem de enkelte deltidere – det er den samlede forløbstid, der er væsentlig at overholde. Patienten kan til enhver tid ønske sig betænkningstid og kan have behov for tid til at vænne sig til tanken om hjertekirurgi. Det vides, at hjertet kan tage skade af for lang ventetid på klapkirurgi, men der findes ingen undersøgelser, der klart viser hvor lang ventetid, der maksimalt må være inden operation.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009
<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

12 Tandlægevurdering før operation

Quick info:

Formålet med tandlægeundersøgelsen er at sikre, at patienten ikke har betændelse i tandrødderne, som efter indoperation af en kunstig hjerteklap evt. kan sprede sig til denne.
Hvis tandlægen finder tegn på infektion skal denne behandles inden kirurgi – ofte ved tandekstraktion.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009
<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

13 Opfølgning

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

Quick info:

Hvis der ikke aktuelt er indikation for kirurgi, skal patienten følges med klinisk og ekkokardiografisk kontrol med faste intervaller. Patienten skal informeres om at henvende sig ved symptomer.

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

14 Patientundervisning

Quick info:

Overvej at tilbyde vejledning og rådgivning med hensyn til:

- fysisk aktivitet på et passende niveau:
 - patienter skal undgå kraftig sportsaktivitet og anden fysisk aktivitet, når der er begrænset kardiell reserve og/eller dysfunktion af venstre ventrikel
- seksuel aktivitet:
 - frygt for pludselig død kan medføre nedsat seksuel aktivitet
 - hjertefrekvensen under samleje er lig de hjertefrekvenser, der ses i dagligdagen
 - beroligende udtalelser er hensigtsmæssige
- motorkøretøj:
 - asymptomatiske patienter uden andre diskvalificerende tilstande må køre bil eller motorcykel efter kirurgi
- drøft passende tidspunkter for tilbagevenden til normale aktiviteter og/eller arbejde
- spørg ind til psykiske symptomer og stress, som er almindeligt hos personer med hjerteklapsygdom – henvis til relevante hjælpemidler

15 Overvej kirurgisk eller perkutan ballonvalvotomi

Quick info:

Perkutan ballonvalvulotomi af mitralklap

- hensigtsmæssigheden af operation afhænger meget af klappens morfologi
- vurder egnet ved ekkokardiografiske fund:
 - f.eks. Wilkins score, som vurderer sværhedsgraden af kommissurkalcifikation, cuspestrykkelse, cuspesmobilitet og subvalvulær sammenvoksning på en skala fra 1 til 4 (total score 16)
 - perkutan ballonvalvulotomi af mitralklap lykkes bedst hos personer, der scorer 8 eller derunder med mild mitralklapinsufficiens
- transøsofageal ekkokardiografi skal gøres før kirurgi for at udelukke forekomst af trombe i venstre atrium
- kontraindiceret ved ueftergivelig kalcificeret klap

Kirurgisk valvulotomi kan komme på tale hos enkelte patienter, hvor man ikke kan foretage ballonvalvulotomi

Referencer:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

16 Overvej mitralklapudskiftning

Quick info:

Indikationer for mitralklapudskiftning, hvis andre kirurgiske indgreb ikke er egnede:

- milde kardielle symptomer (NYHA klasse I og II), svær mitralklapstenose og svær pulmonal hypertension
- signifikante kardielle symptomer (NYHA klasse III og IV) med moderat eller svær stenose

Reference:

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>
Vahanian A, Baumgartner H, Bax J et al. Guidelines on the management of valvular heart disease; the task force on the management of valvular heart disease of the European Society of Cardiology. Eur Heart J 2007; 28: 230-268.

17 Medicinsk efterbehandling

Quick info:

Overvej:

- endokardit profylakse til patienter med en protetisk klap
- behandling af arytmier som relevant
- behandling af komorbiditeter, hjerteinsufficiens, nedsat funktion af venstre ventrikel (LV) og atrieflimren
- antikoagulantia (AK) behandling

Reference:

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab, <http://www.cardio.dk/sw13285.asp>

18 Rehabilitering

Quick info:

Alle hjerteklapopererede patienter bør vurderes med henblik på behov for hjerterehabilitering

I mangel af nationale retningslinjer for hjerteklapopererede patienter, følges Dansk Cardiologisk Selskabs Holdningspapir "fysisk træning ved iskæmisk hjertesygdom og kronisk hjerteinsufficiens", oktober 2008.

Fysisk genoptræning

- Specialiseret genoptræning påbegyndes 4-6 uger efter operationen og forløber over 8 -12 uger på hjertehold m.h.p. konditionstræning, styrketræning og almindeligt vedligehold samt forebyggelse af operationsrelaterede gener
- Anbefales fulgt op af 6-8 ugers træning i kommunalt regi

Sygdomsspecifik patientuddannelse

- Patienter undervises og vejledes specifikt i endokarditprofylakse samt AK-behandling.

Generel patientuddannelse

- Formålet hermed er at lære patienten at håndtere problemer der følger af at leve med en kronisk sygdom.

Ved udskrivelse fra hospital/henvisning til rehabilitering udarbejdes en genoptræningsplan. I rehabilitering af hjertepatienter indgår fysisk genoptræning. Genoptræningsplanen skal være skriftlig, udarbejdes i samarbejde med patienten og sendes til patientens bopælskommune.

Reference:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2009

<http://www.sst.dk/~media/Planlaegning%20og%20kvalitet/Kraeftbehandling/Pakkeforloebbeskrivelser/Pakkeforloeb%20for%20brystkraeft%20120509.ashx>

National behandlingsvejledning for hjerteklapsygdom NBV2009, Dansk Cardiologisk Selskab,

<http://www.cardio.dk/sw13308.asp>

19 Opfølgning efter kirurgisk behandling

Quick info:

Formålet med klinisk kontrol efter hjerteklapoperation er:

- at påvise eventuel dysfunktion ved den behandlede/kunstige hjerteklap
- at følge anden eventuel kardiel komorbiditet
- at optimere den medicinske behandling – herunder AK-behandling
- at sikre at råd om endokarditprofylakse er forstået herunder tandhygiejne

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- at sørge for at patienten er velinformeret om sin sygdom og mulige komplikationer
- evt. ekkokardiografi med henblik på vurdering af funktionen af venstre ventrikels klap og andre klapper

Referencer:

Pakkeforløb for hjertesvigt og hjerteklapsygdom. Sundhedsstyrelsen, 2008, www.sst.dk

Butchart EG, Gohlke-Barwolf C, Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

Key Dates

Due for review: 13-Apr-2011

Locally reviewed: 13-Oct-2009, by Denmark

Updated: 13-Oct-2009

Evidence summary for Mitralstenose

The pathway is consistent with the following quality-appraised guidelines (1, 7, 8, 2). All intervention nodes have been assessed for consistency with high quality guidelines and underlying evidence.

Search date: Oct-2009

Evidence grades:

-  Intervention node supported by level 1 guidelines or systematic reviews
-  Intervention node supported by level 2 guidelines
-  Intervention node based on expert clinical opinion
-  Non-intervention node, not graded

Evidence grading:

Graded node titles that appear on this page

Graded node titles that appear on this page	Evidence grade	Reference IDs
Mitralstenose		8, 2
Undersøgelser		10, 2, 3, 4
Vurdering af sværhedsgrad		10, 2, 3, 4
Medicinsk behandling		10, 2
Indikationer for kirurgi		10, 2
Overvej kirurgisk eller perkutan ballonvalvotomi		10, 2
Opfølgning		2
Overvej koronararteriografi/ hjertekaterisation		10, 2
Medicinsk efterbehandling		2
Hjertekonference		9
Rehabilitering		2, 9
Overvej mitralklapudskiftning		10, 2
Forløbstid for kirurgisk behandling		9
Tandlægevurdering før operation		9
Opfølgning efter kirurgisk behandling		1, 9

References

This is a list of all the references that have passed critical appraisal for use in the pathway Hjerteklapsygdom

ID Reference

- 1 Butchart EG Gohlke-Barwolf C Antunes MJ et al. Recommendations for the management of patients after valvular heart surgery. Eur Heart J 2005; 26: 2463-2471.
- 2 Dansk Cardiologisk Selskab (DCS). National behandlingsvejledning for hjerteklapsygdom NBV 2009. København: DCS; 2009.
<http://www.cardio.dk/sw13285.asp>
- 3 Dansk Cardiologisk Selskab (DCS). Retningslinjer vedr. ekkokardiografi. København: DCS; 2009.

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Mitralstenose

- Danske forløb > Kardiologi > Hjerteklapsygdom

ID Reference

- <http://ekkokardiografi.dk>
- 4 Dansk Cardiologisk Selskab (DCS). Anbefaling vedr. ekkokardiografi. København: DCS; 2009.
<http://www.cardio.dk/sw80.asp>
- 5 Dansk Cardiologisk Selskab (DCS). Vejledning for præ- og interhospital transport af hjertepatienter. 2009.
<http://www.cardio.dk/sw13281.asp>
- 6 European Society of Cardiology (ESC). Guidelines on the prevention, diagnosis, and treatment of infective endocarditis. Eur Heart J 2009; 30: 2369-2413.
- 7 National Institute for Health and Clinical Excellence (NICE). Prophylaxis against infective endocarditis. Clinical guideline 64. London: NICE; 2008.
- 8 Nishimura RA, Carabello BA, et al. ACC/AHA 2008 guideline update on valvular heart disease: focused update on infective endocarditis. Circulation 2008; 118: 887-896.
<http://www.ncbi.nlm.nih.gov/pubmed/18663090?dopt=Citation>
- 9 Sundhedsstyrelsen. Pakkeforløb for hjerteklapsygdom og hjertesvigt. København: Sundhedsstyrelsen; 2009.
<http://www.cardio.dk/sw80.asp>
- 10 Vahanian A Baumgartner H Bax J et al. Guidelines on the management of valvular heart disease. Eur Heart J 2007; 28: 230-268.

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