NKR 9 Blodkomponenter PICO 10 balanceret komponentterapi versus transfusion med anden erytrocyt

Characteristics of studies

Characteristics of included studies

Fox 2017

Methods	
Participants	
Interventions	
Outcomes	
Notes	Post-hoc analyses of Holcomb 2015, with additional data on mortality

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	See Holcomb 2015
Allocation concealment (selection bias)	Unclear risk	See Holcomb 2015
Blinding of participants and personnel (performance bias)	Unclear risk	See Holcomb 2015
Blinding of outcome assessment (detection bias)	Unclear risk	See Holcomb 2015
Incomplete outcome data (attrition bias)	Unclear risk	See Holcomb 2015
Selective reporting (reporting bias)	Unclear risk	See Holcomb 2015
Other bias	Unclear risk	See Holcomb 2015

Holcomb 2015

Methods	
Participants	
Interventions	
Outcomes	
Notes	Data obtained from: McQuilten ZK[1], Crighton G[2], Brunskill S[3], Morison JK[2], Richter TH[2], Waters N[2], Murphy MF[3], Wood EM[2]. Optimal Dose, Timing and Ratio of Blood Products in Massive Transfusion: Results from a Systematic Review. Transfus Med Rev. 2018 Jan;32(1):6-15. doi: 10.1016/j.tmrv.2017.06.003. Epub 2017 Jul 6.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Reference: McQuilten et al., 2018
Allocation concealment (selection bias)	Low risk	Reference: McQuilten et al., 2018
Blinding of participants and personnel (performance bias)	Low risk	Reference: McQuilten et al., 2018
Blinding of outcome assessment (detection bias)	Unclear risk	Reference: McQuilten et al., 2018
Incomplete outcome data (attrition bias)	Low risk	Reference: McQuilten et al., 2018
Selective reporting (reporting bias)	High risk	Reference: McQuilten et al., 2018
Other bias	Unclear risk	Reference: McQuilten et al., 2018

Nascimento 2013

Methods	
Participants	
Interventions	
Outcomes	
Notes	Data obtained from: McQuilten ZK[1], Crighton G[2], Brunskill S[3], Morison JK[2], Richter TH[2], Waters N[2], Murphy MF[3], Wood EM[2]. Optimal Dose, Timing and Ratio of Blood Products in Massive Transfusion: Results from a Systematic Review. Transfus Med Rev. 2018 Jan;32(1):6-15. doi: 10.1016/j.tmrv.2017.06.003. Epub 2017 Jul 6.

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Reference: McQuilten et al., 2018
Allocation concealment (selection bias)	Low risk	Reference: McQuilten et al., 2018
Blinding of participants and personnel (performance bias)	High risk	Reference: McQuilten et al., 2018
Blinding of outcome assessment (detection bias)	High risk	Reference: McQuilten et al., 2018
Incomplete outcome data (attrition bias)	Low risk	Reference: McQuilten et al., 2018
Selective reporting (reporting bias)	Unclear risk	Reference: McQuilten et al., 2018
Other bias	High risk	Reference: McQuilten et al., 2018

Footnotes

Summary of findings tables

Additional tables

Data and analyses

1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt

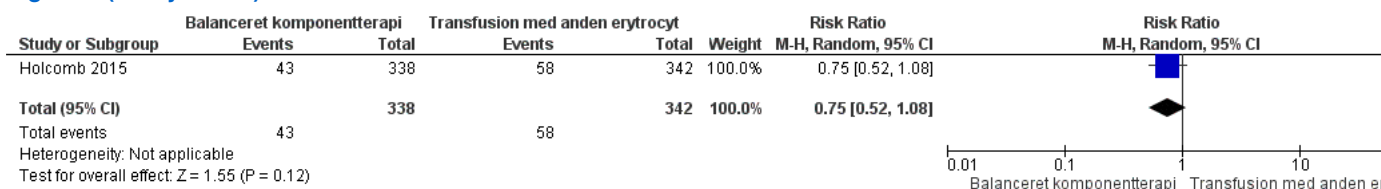| Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 *Mortality_3 timer efter transfusion*	1	680	Risk Ratio (M-H, Fixed, 95% CI)	0.53 [0.32, 0.90]
1.2 *Mortality_ 24 timer efter transfusion*	1	680	Risk Ratio (M-H, Random, 95% CI)	0.75 [0.52, 1.08]
1.3 *Mortality_ 28-30 dage efter transfusion*	2	755	Risk Ratio (M-H, Random, 95% CI)	1.26 [0.49, 3.22]
1.4 *Severe adverse events(sepsis)_længste FU*	1	680	Risk Ratio (M-H, Random, 95% CI)	1.10 [0.86, 1.40]
1.5 *Severe adverse events(infection)_længste FU*	1	680	Risk Ratio (M-H, Random, 95% CI)	0.94 [0.74, 1.18]
1.6 *Severe adverse events(VAP)_længste FU*	1	680	Risk Ratio (M-H, Random, 95% CI)	1.08 [0.78, 1.50]
1.7 *Incidence of multiple organ failure_længste FU*	1	680	Risk Ratio (M-H, Random, 95% CI)	1.35 [0.70, 2.59]
1.8 *Acute kidney injury/failure_længste FU*	1	680	Risk Ratio (M-H, Fixed, 95% CI)	0.88 [0.67, 1.16]
1.9 *Exsanguination_længste FU*	0	0	Risk Ratio (M-H, Random, 95% CI)	Not estimable
1.10 *Death from exsanguination_længste FU*	2	745	Risk Ratio (M-H, Random, 95% CI)	1.11 [0.38, 3.28]
1.11 *Death of multiple organ failure_længste FU*	2	745	Risk Ratio (M-H, Random, 95% CI)	1.34 [0.56, 3.25]
1.12 Achieved hemostasis_Længste FU	1	680	Risk Ratio (M-H, Fixed, 95% CI)	1.10 [1.03, 1.18]

Figures

Figure 1
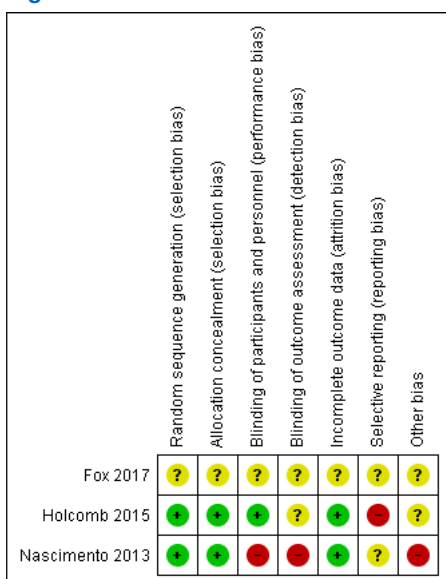
Risk of bias summary: review authors' judgements about each risk of bias item for each included study.
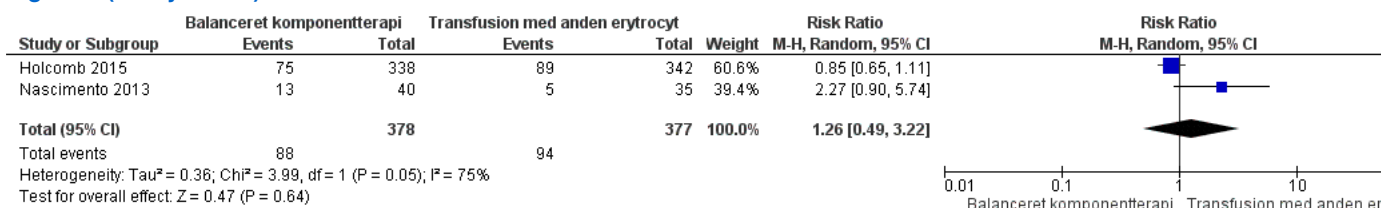
Figure 2 (Analysis 1.2)

Study or Subgroup	Balanceret komponentterapi		Transfusion med anden erytrocyt		Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	Events	Total	Events	Total			
Holcomb 2015	43	338	58	342	100.0%	0.75 [0.52, 1.08]	
Total (95% CI)		338		342	100.0%	0.75 [0.52, 1.08]	
Total events	43		58				
Heterogeneity: Not applicable							
Test for overall effect: Z = 1.55 (P = 0.12)							

Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.2 *Mortality_ 24 timer efter transfusion*.
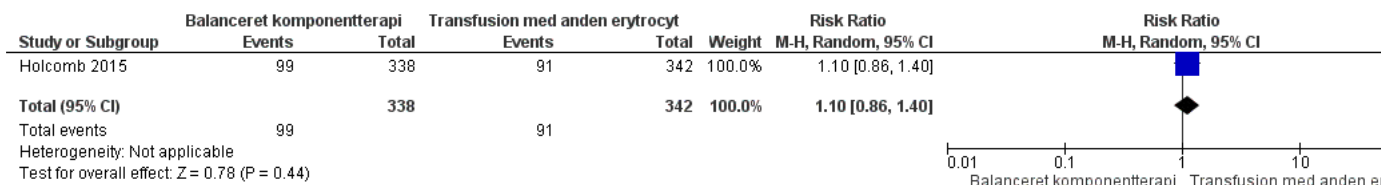
Figure 3 (Analysis 1.3)

Study or Subgroup	Balanceret komponentterapi		Transfusion med anden erytrocyt		Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	Events	Total	Events	Total			
Holcomb 2015	75	338	89	342	60.6%	0.85 [0.65, 1.11]	
Nascimento 2013	13	40	5	35	39.4%	2.27 [0.90, 5.74]	
Total (95% CI)		378		377	100.0%	1.26 [0.49, 3.22]	
Total events	88		94				
Heterogeneity: Tau² = 0.36; Chi² = 3.99, df = 1 (P = 0.05); I² = 75%							
Test for overall effect: Z = 0.47 (P = 0.64)							

Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.3 *Mortality_ 28-30 dage efter transfusion*.
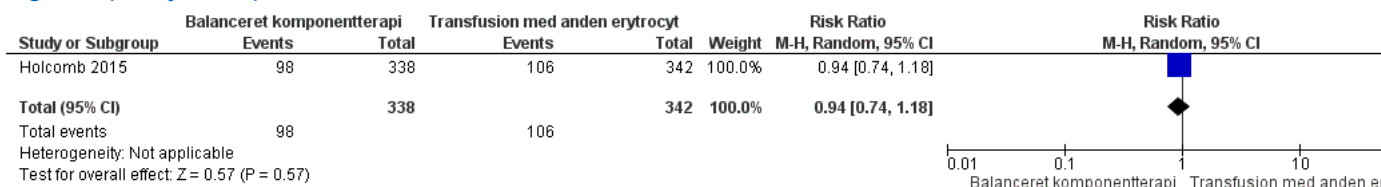
Figure 4 (Analysis 1.4)

Study or Subgroup	Balanceret komponentterapi		Transfusion med anden erytrocyt		Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	Events	Total	Events	Total			
Holcomb 2015	99	338	91	342	100.0%	1.10 [0.86, 1.40]	
Total (95% CI)		338		342	100.0%	1.10 [0.86, 1.40]	
Total events	99		91				
Heterogeneity: Not applicable							
Test for overall effect: Z = 0.78 (P = 0.44)							

Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.4 *Severe adverse events(sepsis)_længste FU*.

Figure 5 (Analysis 1.5)

Study or Subgroup	Balanceret komponentterapi		Transfusion med anden erytrocyt		Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
	Events	Total	Events	Total			
Holcomb 2015	98	338	106	342	100.0%	0.94 [0.74, 1.18]	
Total (95% CI)		338		342	100.0%	0.94 [0.74, 1.18]	
Total events	98		106				
Heterogeneity: Not applicable							
Test for overall effect: Z = 0.57 (P = 0.57)							

Risk of bias legend
(**A**) Random sequence generation (selection bias)
(**B**) Allocation concealment (selection bias)
(**C**) Blinding of participants and personnel (performance bias)
(**D**) Blinding of outcome assessment (detection bias)
(**E**) Incomplete outcome data (attrition bias)
(**F**) Selective reporting (reporting bias)
(**G**) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.5 *Severe adverse events(infection)_længste FU*.

Figure 6 (Analysis 1.6)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Holcomb 2015	62	338	58	342	100.0%	1.08 [0.78, 1.50]	
Total (95% CI)		338		342	100.0%	1.08 [0.78, 1.50]	
Total events	62		58				

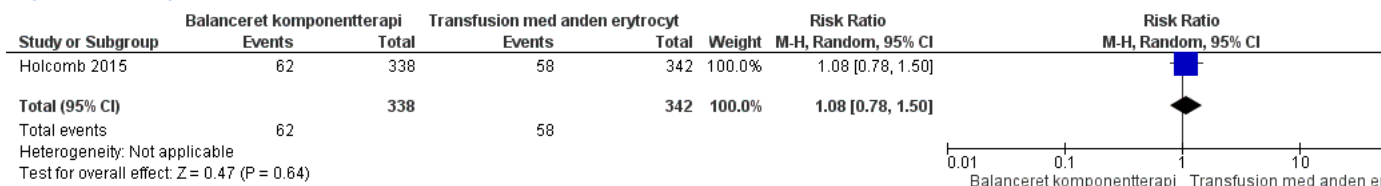Heterogeneity: Not applicable
Test for overall effect: Z = 0.47 (P = 0.64)

Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.6 *Severe adverse events(VAP)_længste FU*.

Figure 7 (Analysis 1.7)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Holcomb 2015	20	338	15	342	100.0%	1.35 [0.70, 2.59]	
Total (95% CI)		338		342	100.0%	1.35 [0.70, 2.59]	
Total events	20		15				

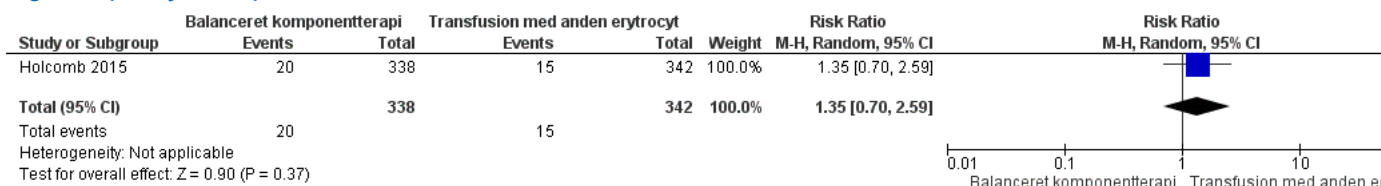Heterogeneity: Not applicable
Test for overall effect: Z = 0.90 (P = 0.37)

Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.7 *Incidence of multiple organ failure_længste FU*.

Figure 9 (Analysis 1.10)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Holcomb 2015	36	335	50	341	63.6%	0.73 [0.49, 1.09]	
Nascimento 2013	8	37	3	32	36.4%	2.31 [0.67, 7.97]	
Total (95% CI)		372		373	100.0%	1.11 [0.38, 3.28]	
Total events	44		53				

Heterogeneity: Tau² = 0.44; Chi² = 2.98, df = 1 (P = 0.08); I² = 66%
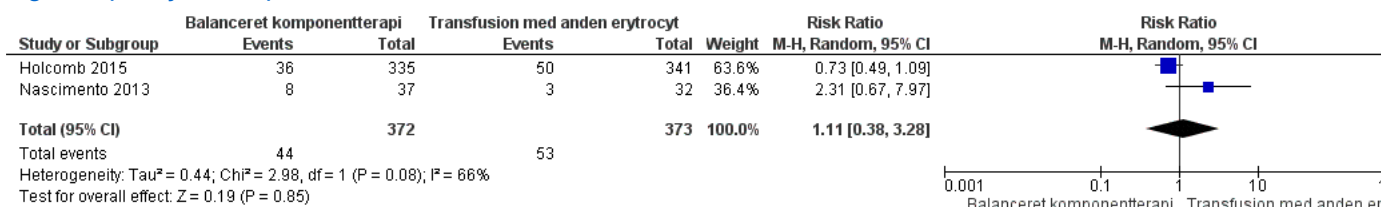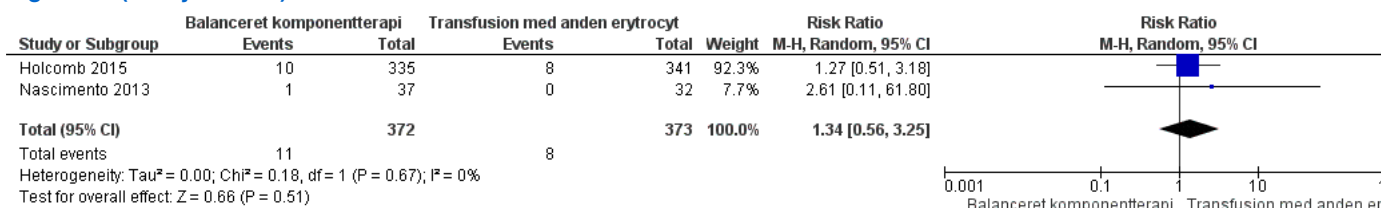Test for overall effect: Z = 0.19 (P = 0.85)

Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.10 *Death from exsanguination_længste FU*.

Figure 10 (Analysis 1.11)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Random, 95% CI	Risk Ratio M-H, Random, 95% CI
Holcomb 2015	10	335	8	341	92.3%	1.27 [0.51, 3.18]	
Nascimento 2013	1	37	0	32	7.7%	2.61 [0.11, 61.80]	
Total (95% CI)		372		373	100.0%	1.34 [0.56, 3.25]	
Total events	11		8				

Heterogeneity: Tau² = 0.00; Chi² = 0.18, df = 1 (P = 0.67); I² = 0%
Test for overall effect: Z = 0.66 (P = 0.51)

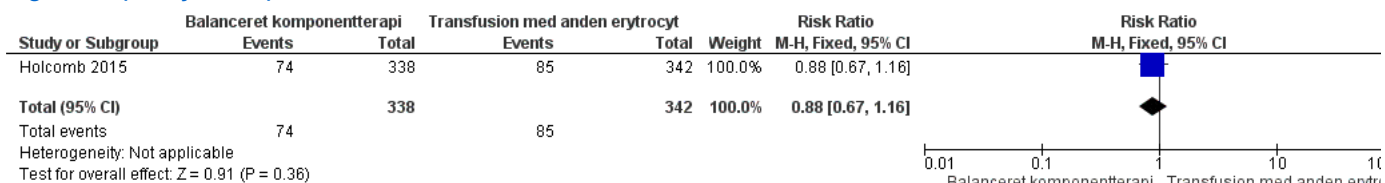Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)

(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.11 *Death of multiple organ failure_længste FU*.

Figure 11 (Analysis 1.8)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Holcomb 2015	74	338	85	342	100.0%	0.88 [0.67, 1.16]
Total (95% CI)		338		342	100.0%	**0.88 [0.67, 1.16]**
Total events	74		85			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.36)

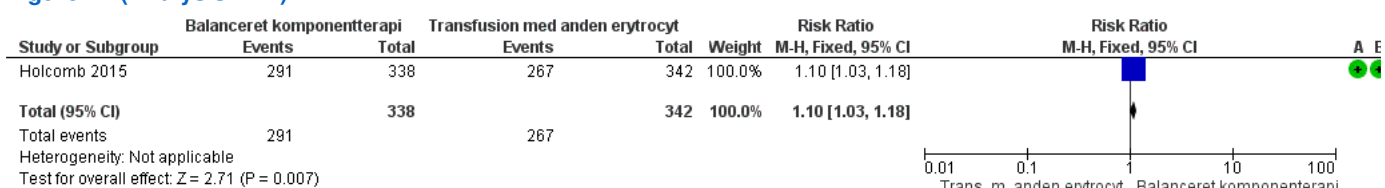Risk Ratio M-H, Fixed, 95% CI — axis: 0.01 0.1 1 10 10 — Balanceret komponentterapi / Transfusion med anden erytr...

Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.8 *Acute kidney injury/failure_længste FU*.

Figure 12 (Analysis 1.12)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Holcomb 2015	291	338	267	342	100.0%	1.10 [1.03, 1.18]
Total (95% CI)		338		342	100.0%	**1.10 [1.03, 1.18]**
Total events	291		267			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.71 (P = 0.007)

Risk Ratio M-H, Fixed, 95% CI — axis: 0.01 0.1 1 10 100 — Trans. m. anden erytrocyt / Balanceret komponenterapi
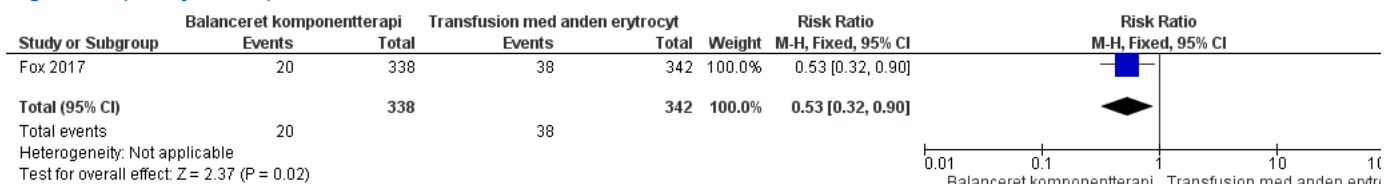
Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.12 Achieved hemostasis_Længste FU.

Figure 13 (Analysis 1.1)

Study or Subgroup	Balanceret komponentterapi Events	Total	Transfusion med anden erytrocyt Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Fox 2017	20	338	38	342	100.0%	0.53 [0.32, 0.90]
Total (95% CI)		338		342	100.0%	**0.53 [0.32, 0.90]**
Total events	20		38			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.37 (P = 0.02)

Risk Ratio M-H, Fixed, 95% CI — axis: 0.01 0.1 1 10 10 — Balanceret komponentterapi / Transfusion med anden erytr...

Risk of bias legend
(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Forest plot of comparison: 1 Balanceret komponentterapi vs. Transfusion med anden erytrocyt, outcome: 1.1 *Mortality_3 timer efter transfusion*.