

**Supplementary Material 1.** Search strategy for each database

**MEDLINE:** (“cardiac surgical procedures”[mh] OR “cardiac surgical patient” OR “heart surgery” OR “cardiopulmonary bypass” OR “cardiac surgery” OR “aortic replacement surgery” OR “coronary artery bypass grafting” OR “valve surgery” OR “aortic surgery” OR “cardiac transplantation”) AND (“prothrombin complex concentrate” OR “4-Factor Prothrombin” OR PCC OR prothrombin) AND (plasma[mh] OR “standard care” OR “frozen plasma” OR plasma)

**Embase:** (“cardiac surgical procedures” OR “cardiac surgical patient” OR “heart surgery” OR “cardiopulmonary bypass” OR “cardiac surgery” OR “aortic replacement surgery” OR “coronary artery bypass grafting” OR “valve surgery” OR “aortic surgery” OR “cardiac transplantation”) AND (“prothrombin complex concentrate” OR “4-Factor Prothrombin” OR PCC OR prothrombin) AND (plasma OR “standard care” OR “frozen plasma” OR plasma)

**Cochrane:** (‘cardiac surgical procedure’ OR ‘cardiac surgical patient’ OR ‘heart surgery’/exp OR ‘heart surgery’ OR ‘cardiopulmonary bypass’/exp OR ‘cardiopulmonary bypass’ OR ‘cardiac surgery’/exp OR ‘cardiac surgery’ OR ‘aortic replacement surgery’ OR ‘coronary artery bypass grafting’/exp OR ‘coronary artery bypass grafting’ OR ‘valve surgery’ OR ‘aortic surgery’/exp OR ‘aortic surgery’ OR ‘cardiac transplantation’/exp OR ‘cardiac transplantation’) AND (‘prothrombin complex’/exp OR ‘prothrombin complex’ OR ‘4-factor prothrombin’ OR pcc) AND (‘standard care’/exp OR ‘standard care’ OR ‘fresh frozen plasma’/exp OR ‘fresh frozen plasma’ OR ‘plasma’/exp OR plasma)

## Quality assessment

Study	Risk of bias domains					Overall
	D1	D2	D3	D4	D5	
Karkouti et al. [3] (2021)	+	+	+	+	+	+
Green et al. [4] (2021)	+	-	+	-	+	-
Smith et al. [13] (2020)	+	+	+	+	+	+

Domains:  
D1: Bias arising from the randomization process.  
D2: Bias due to deviations from intended intervention.  
D3: Bias due to missing outcome data.  
D4: Bias in measurement of the outcome.  
D5: Bias in selection of the reported result.

Judgement  
- Some concerns  
+ Low

**Supplementary Fig. 1.** Quality assessment according to the Cochrane Collaboration tool (RoB2) of 3 randomized controlled trials in a

systematic review and meta-analysis comparing prothrombin complex concentrate versus fresh frozen plasma in adult cardiac surgery patients.

Risk of bias domains

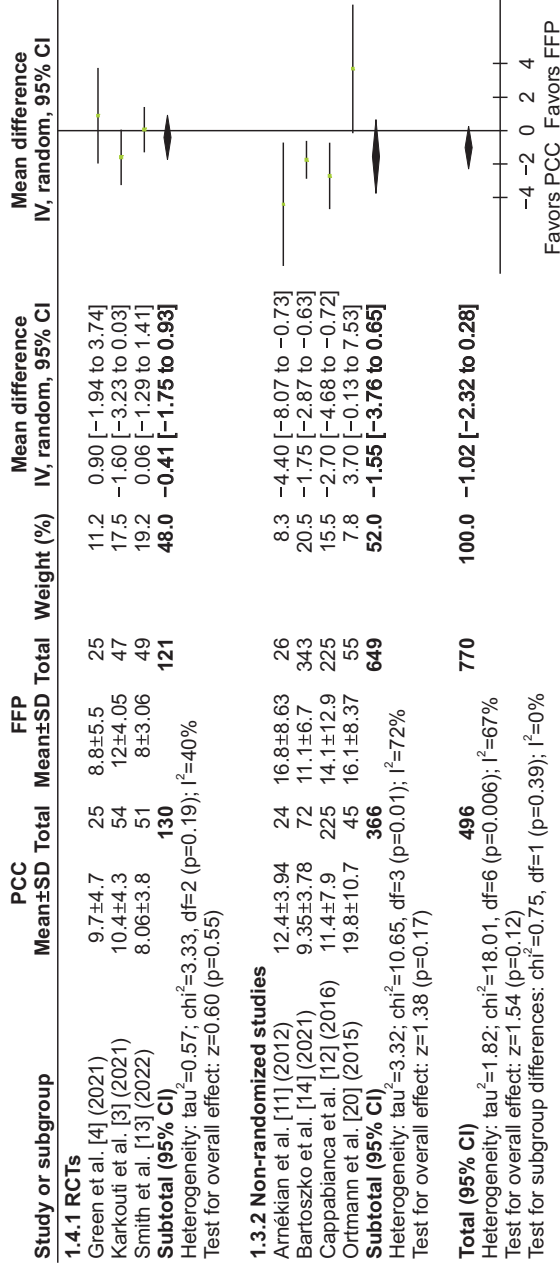
Study	D1	D2	D3	D4	D5	D6	D7	Overall
Arnékian et al. [11] (2012)	●	+	+	+	?	●	●	●
Bartoszko et al. [14] (2021)	+	+	+	+	+	+	+	+
Cappabianca et al. [12] (2016)	●	+	+	+	+	●	●	●
Fitzgerald et al. [15] (2018)	●	+	+	+	+	+	●	●
Ortmann et al. [20] (2015)	●	+	+	+	+	●	●	●

Domains:  
D1: Bias due to confounding.  
D2: Bias due to selection of participants.  
D3: Bias in classification of interventions.  
D4: Bias due to deviations from intended interventions.  
D5: Bias due to missing data.  
D6: Bias in measurement of the outcome.  
D7: Bias in selection of the reported result.

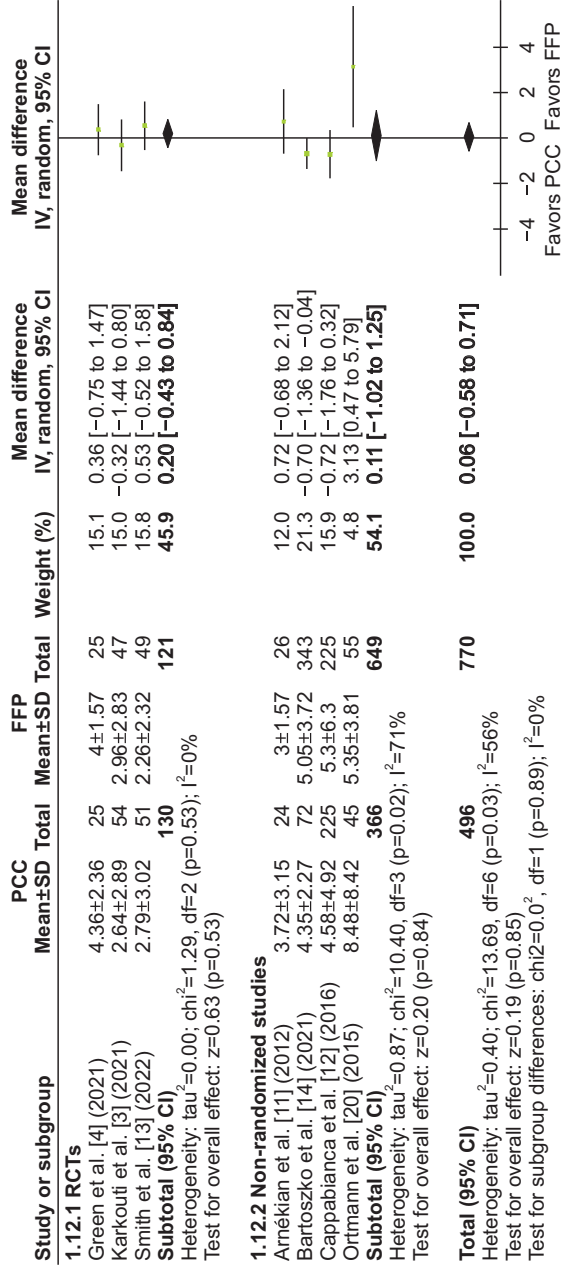
Judgement  
● Critical  
● Moderate  
+ Low  
? No information

**Supplementary Fig. 2.** Quality assessment according to the Cochrane Collaboration tool (ROBINS-I) for the observational studies in a systematic review and meta-analysis comparing prothrombin complex concentrate versus fresh frozen plasma in adult cardiac surgery patients.

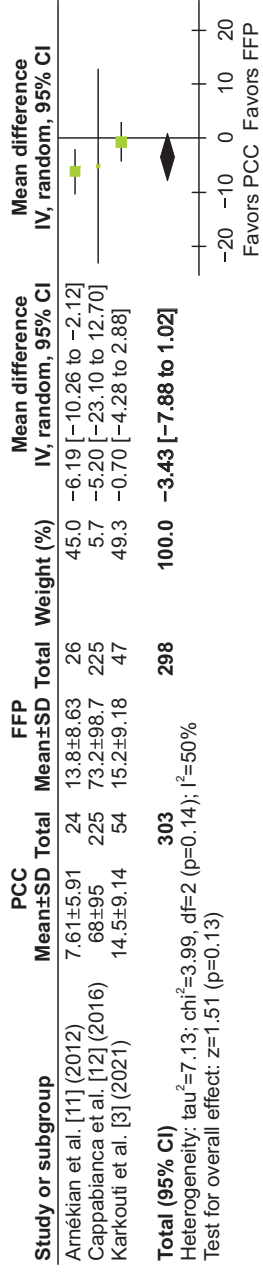
### Pooled analysis of all studies



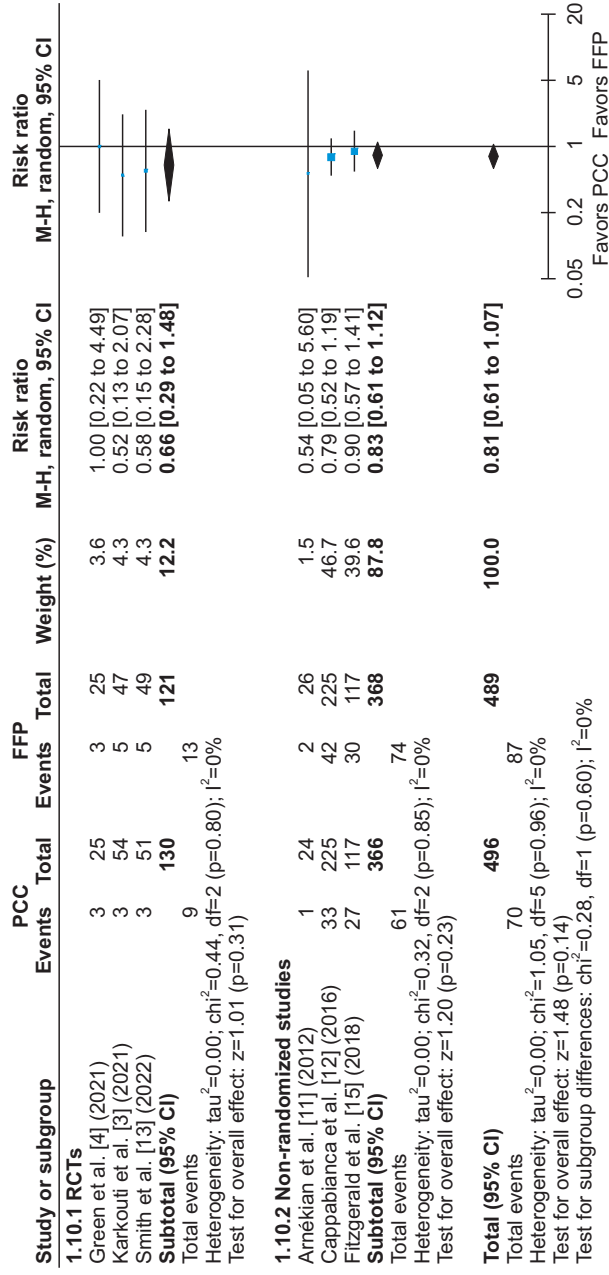
**Supplementary Fig. 3.** There was no significant difference in the length of hospital stay after cardiac surgery between patients who received prothrombin complex concentrate (PCC) versus fresh frozen plasma (FFP) during surgery for coagulopathy or bleeding. SD, standard deviation; IV, inverse variance; CI, confidence interval; RCT, randomized controlled trial; df, degrees of freedom. p-values <0.05 indicate statistical significance.



**Supplementary Fig. 4.** There was no significant difference in the length of intensive care unit stay after cardiac surgery between patients who received prothrombin complex concentrate (PCC) versus fresh frozen plasma (FFP) during surgery for coagulopathy or bleeding. SD, standard deviation; IV, inverse variance; CI, confidence interval; RCT, randomized controlled trial; df, degrees of freedom. p-values <0.05 indicate statistical significance.



**Supplementary Fig. 5.** There was no significant difference in duration of mechanical ventilation (hours) after cardiac surgery between patients who received prothrombin complex concentrate (PCC) versus fresh frozen plasma (FFP) during surgery for bleeding or coagulopathy. SD, standard deviation; IV, inverse variance; CI, confidence interval; df, degrees of freedom. p-values <0.05 indicate statistical significance.

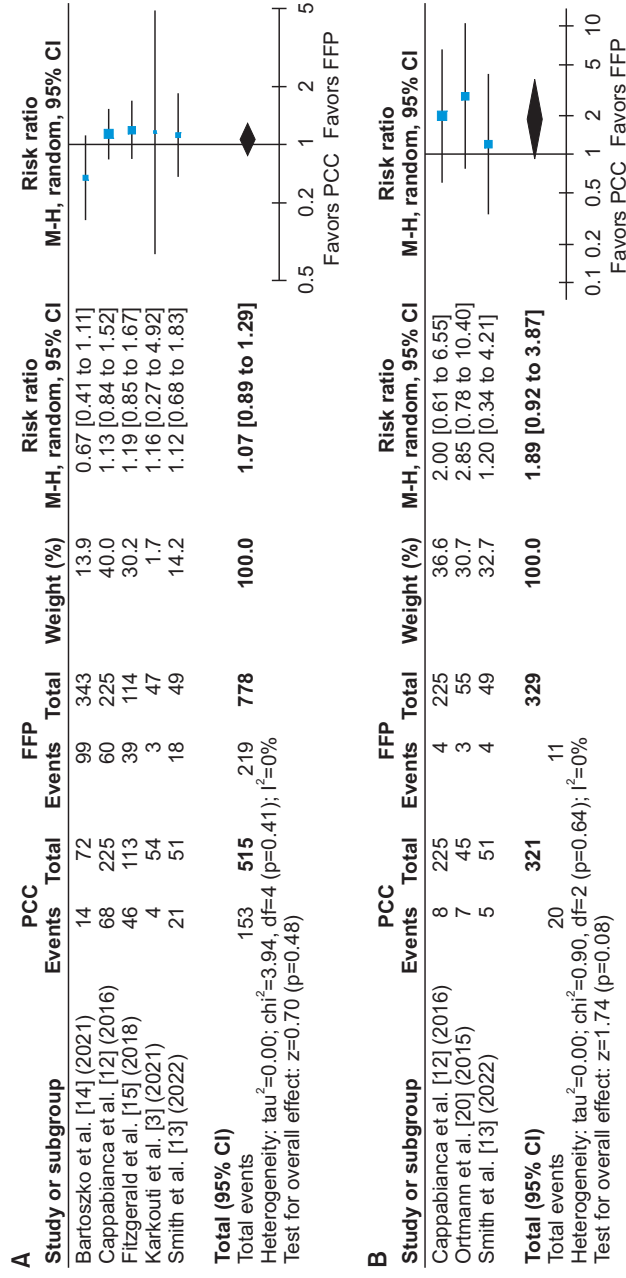


**Supplementary Fig. 6.** There was no significant difference in the rate of reoperation for bleeding within 48 hours of cardiac surgery between

patients who received prothrombin complex concentrate (PCC) versus fresh frozen plasma (FFP) during surgery for bleeding or coagulopathy.

M-H, Mantel-Haenszel; CI, confidence interval; RCT, randomized controlled trial; df, degrees of freedom.  $p$ -values  $<0.05$  indicate statistical

significance.



**Supplementary Fig. 7. (A)** There was no significant difference in the incidence of acute kidney injury after cardiac surgery between patients who received prothrombin complex concentrate (PCC) versus fresh frozen plasma (FFP) during surgery for bleeding or coagulopathy. **(B)** There was no significant difference in the risk of renal replacement therapy after cardiac surgery between patients who received PCC versus FFP during surgery for bleeding or coagulopathy. M-H, Mantel-Haenszel; CI, confidence interval; df, degrees of freedom.  $p$ -values  $<0.05$  indicate statistical significance.