Restrictive transfusion is non-inferior to liberal transfusion in upper gastrointestinal bleeding:

a systematic review and meta-analysis of randomised controlled trials

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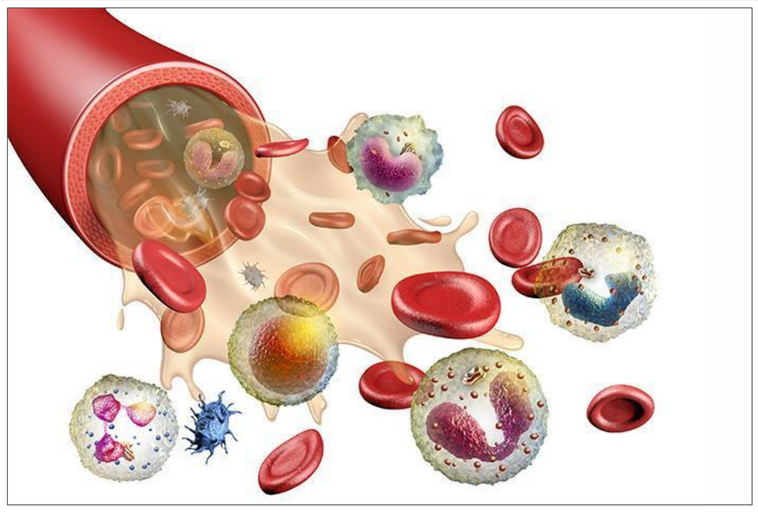
INTRODUCTION

The optimal red blood cell (RBC) transfusion strategy in acute gastrointestinal bleeding (GIB) is debated. We aimed to assess the efficacy and safety of restrictive compared to liberal transfusion strategies in the GIB population.

METHODS

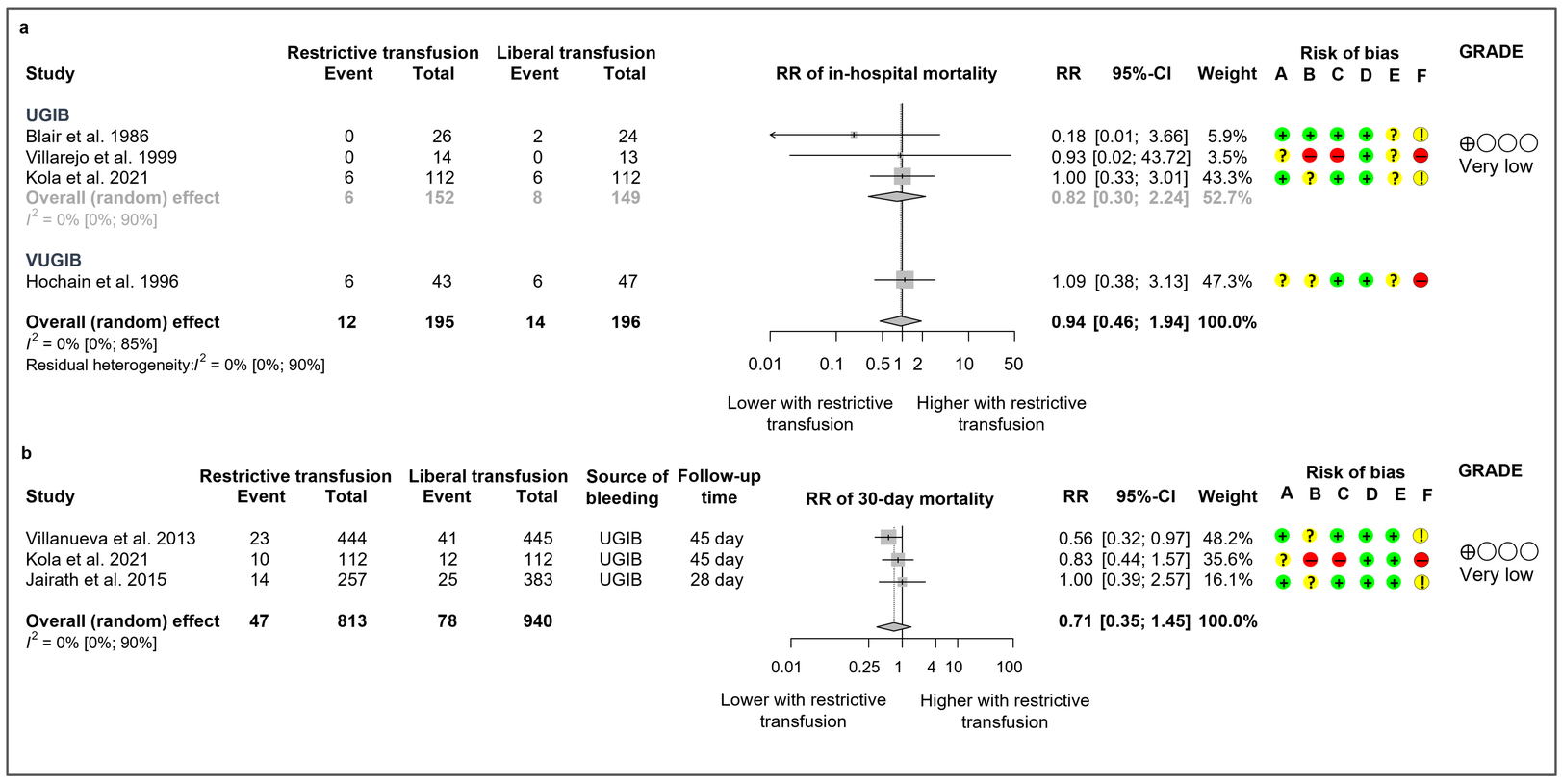
We searched PubMed, CENTRAL, Embase, and Web of Science for randomised controlled trials on 15.01.2022 without restrictions. Studies comparing lower to higher RBC transfusion thresholds after GIB were eligible. We used the random effect model and calculated pooled mean differences (MD), risk ratios (RR) and proportions with 95% confidence intervals (CI) to calculate the overall effect size.



https://www.frontiersin.org/research-topics/5914/molecular-bridges-between-hematology-and-inflammation

RESULTS

The search yielded 3955 hits. All seven eligible studies reported on the upper GIB population. Restrictive transfusion did not increase the in-hospital- (RR:0.94; CI:0.46,1.94) and 30-day mortality (RR:0.68; CI:0.48,0.97). In-hospital- and 28 to 45-day rebleeding rate was also not higher with the restrictive modality (RR:0.67; CI:0.30,1.50; RR:0.75; CI:0.49,1.16, respectively). Results of individual studies showed a lower rate of transfusion reactions and post-transfusion intervention if the transfusion was started at a lower threshold. A haemoglobin threshold >80g/L may result in a higher untoward outcome rate.



Outcomes	№ of participants (studies) Follow-up	Certainty of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects: Risk with liberal transfusion	Anticipated absolute effects: Risk difference with restrictive transfusion
Units of red blood cells transfused	1830 (5 RCTs)	⊕◯◯◯ Very low	-		MD 1.35 units fewer (2.39 fewer to 0.32 fewer)
In-hospital rebleeding	1893 (5 RCTs)	⊕◯◯◯ Very low	RR 0.67 (0.30 to 1.50)	135 per 1,000	44 fewer per 1,000 (94 fewer to 67 more)
Rebleeding follow-up: range 28 days to 45 days	927 (3 RCTs)	⊕◯◯◯ Very low	RR 0.75 (0.49 to 1.16)	97 per 1,000	24 fewer per 1,000 (49 fewer to 16 more)
Acute kidney injury	1504 (3 RCTs)	⊕◯◯◯ Very low	RR 0.79 (0.61 to 1.03)	137 per 1,000	29 fewer per 1,000 (53 fewer to 4 more)
Length of hospital stay	1140 (3 RCTs)	⊕◯◯◯ Very low	-		MD 0.49 days lower (1.86 lower to 0.89 higher)

CONCLUSION

In summary, restrictive transfusion proved non-inferior to liberal transfusion regarding all investigated clinical endpoints. The optimal restrictive transfusion threshold should be further investigated.