CURRENT STRATEGIES TO PREVENT ACUTE KIDNEY INJURY AFTER PEDIATRIC CARDIAC SURGERY ARE INEFFECTIVE:

NETWORK META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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BACKGROUND

36% Of children undergoing cardiac surgery develop acute kidney injury (AKI)



9x Increased risk of developing chronic kidney disease (CKD)

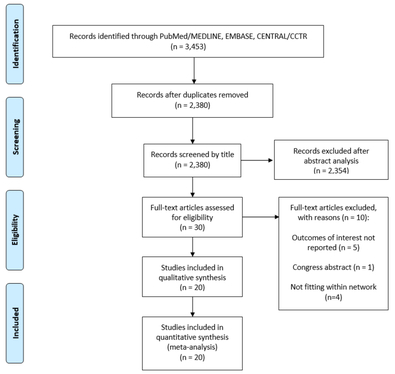
How can this complication be prevented?

METHODS

Systematic review of the literature

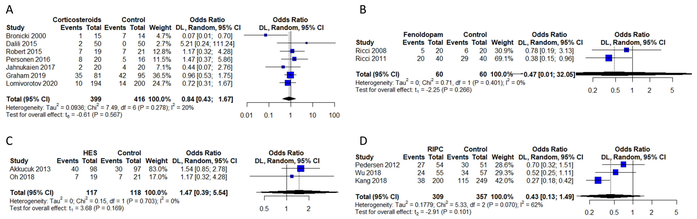
- 20 randomized controlled trials
- 2,339 patients
- 11 strategies

Meta-analysis



RESULTS

Traditional pairwise meta-analysis: no significant effect of corticosteroids, fenoldopam, hydroxyethyl starch (HES), or remote ischemic preconditioning (RIPC)

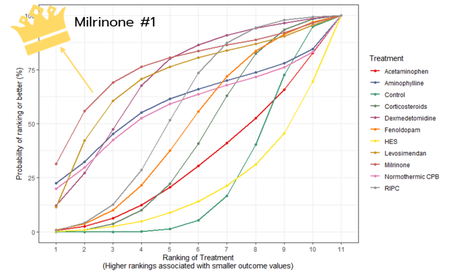


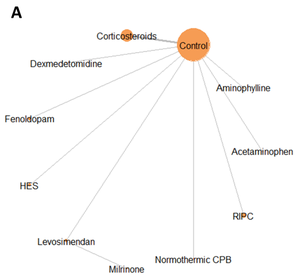
Trial sequential analysis

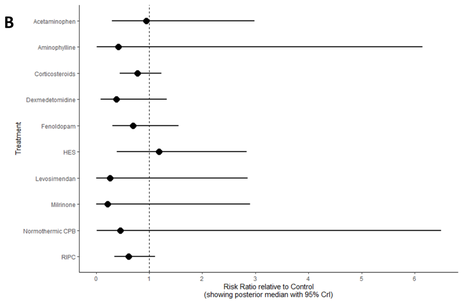
- 80% relative risk reduction with dexmedetomidine
- evidence of less than 57% relative risk reduction with RIPC

RESULTS

Network meta-analysis: no significant effect of any therapy







CONCLUSION

- Findings from randomized controlled **trials do not support the efficacy of most strategies to prevent AKI in the pediatric population,** apart from **limited evidence for dexmedetomidine and RIPC**

- Further investigations are needed to define an optimal protocol
- The **paradigm of the randomized controlled trial might have to be revised**

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