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Background

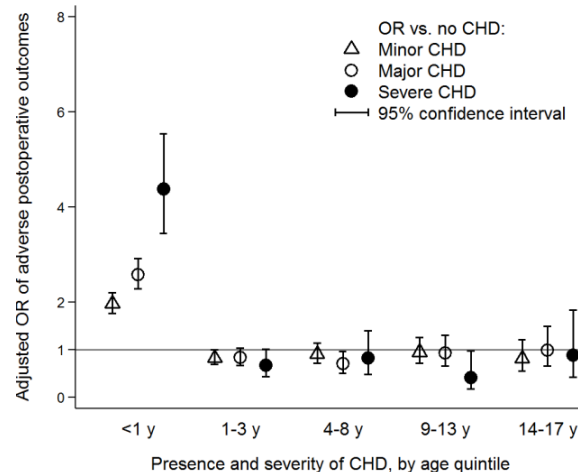
- As management of congenital heart disease (CHD) improves, children with CHD increasingly present for non-cardiac surgery.
- Prior studies report conflicting results on the association between CHD and adverse outcomes in non-cardiac surgeries.
- Some studies have found an association between CHD and adverse outcomes while others, primarily involving cohorts of older children, have found no such association.
- We evaluated whether the association between CHD and adverse surgical outcomes was attenuated by older age.

Results

- Analysis included 131,164 children, of whom 6,420 had minor CHD, 3,825 had major CHD, and 963 had severe CHD.
- The overall rate of complications was 9%.
- Children <1 years old had greater risk of postoperative complications if they had CHD.
 - Minor:** OR=2.0; 95% CI: 1.7, 2.2; $p < 0.001$
 - Major:** OR=2.6; 95% CI: 2.3, 2.9; $p < 0.001$
 - Severe:** OR=4.4; 95% CI: 3.5, 5.5; $p < 0.001$
- In older age groups, the presence of CHD was not independently associated with postoperative complications (**Figure**).

Methods

- Patients 0-17 years of age undergoing elective non-cardiac surgery were identified in National Surgical Quality Improvement Program (NSQIP) - Pediatric registry.
- Multivariable logistic regression evaluated association between CHD status (none, minor, major, or severe) and any postoperative complications for groups defined by patient age.
- Complications included cardiac arrest, reintubation, infection, renal failure, neurological complication, thromboembolic complication, reoperation, 30 day unplanned revisit, 30 day prolonged hospital stay, and mortality.



Conclusion

- In elective non-cardiac pediatric surgery, excess risk of postoperative complications attributable to CHD was only evident among infants and not older children.
- This finding reconciles results from prior analyses of NSQIP that focused on cohorts of older children, where CHD lacked an independent association with adverse outcomes.
- Among older children, recognition of specific risk factors apart from CHD may be more relevant for risk adjustment.
- Alternatively, mortality selection or improved management of CHD symptoms at older ages may contribute to equivalency of outcomes between older children with and without CHD.

References

- Faraoni D, Zurawski D, Vo D, et al. Post-operative outcomes in children with and without congenital heart disease undergoing noncardiac surgery. *J Am Coll Cardiol* 2016;67:793-801.
- Basques BA, Chung SH, Lukasiwicz AM, et al. Predicting Short-term Morbidity in Patients Undergoing Posterior Spinal Fusion for Neuromuscular Scoliosis. *Spine*. 2015;40:1910-7.