

https://dspace.org/

Risk factors associated with unplanned ICU admissions following paediatric surgery: a systematic review

Essa, Sameera

2021
https://hdl.handle.net/10539/33638

Downloaded from a DSpace repository. https://dspace.org/

Risk factors associated with unplanned ICU admissions following paediatric surgery: a systematic review

Sameera Essa

Abstract

Background

Unplanned admissions to the intensive care unit (ICU) have important implications in the general management of patients and result in unfavourable resource consequences. Research in this area has been conducted in the adult and non-surgical population. To date, there is no systematic review addressing the risk factors in the paediatric surgical population. Our aim was to synthesise the information from studies that explore the risk factors associated with unplanned ICU admissions following surgery in children.

Methods

We conducted a systematic review of published literature (PROSPERO registration CRD42020163766), adhering to the Preferred Reporting of Observational Studies and Meta-Analysis (PRISMA) statement. The Population, Exposure, Comparator, Outcome (PECO) strategy used was based on: population – paediatric population, exposure – risk factors, comparator – other, and outcome – unplanned ICU admission. Data that reported on unplanned ICU admissions following paediatric surgery were extracted and analysed. Quality of the studies was assessed using the Newcastle-Ottawa Scale.

Results

Six studies were included in the data synthesis. Three studies were of good quality with the Newcastle-Ottawa Scale score ≥ 7 points. The pooled prevalence (95% CI) estimates of unplanned ICU stay was 0.08 (0.01- 0.20) and ranged between 0 – 0.34%. General anaesthesia, together with endotracheal tube care and inappropriate intravenous fluid administration contributed to significant risk of unplanned ICU admission compared with other types of anaesthesia. Airway abnormalities were reported to be associated with risk of adverse outcome in three of the studies whereas systemic comorbid abnormalities were reported in four. Abdominal surgery and ear, nose and throat (ENT) surgery resulted in a significantly higher risk of unplanned ICU admission. Emergency surgery resulted in three times more likelihood of risk. Due to the heterogeneity of the data, a meta-analysis with risk prediction could not be performed.

Conclusion

Significant patient, surgical and anaesthetic risk factors associated with unplanned ICU admission in children following surgery have been identified in this study. A combination of these factors may direct planning toward anticipation of the need for a higher level of postoperative care. Some events which resulted in unplanned ICU admission were found to be predictable and preventable. Further work to develop a predictive score for unplanned ICU stay is desirable.