

Incidence, Risk Factors and Impact of Major Adverse Events Following Paediatric Cardiac Surgery

Authors : Sandipika Gupta

Abstract : Objective: Due to admirably low 30-day mortality rates for paediatric cardiac surgery, it is now pertinent to turn towards more intermediate-length outcomes such as morbidities closely associated with these surgeries. One such morbidity, major adverse events (MAE) comprises a group of adverse outcomes associated with paediatric cardiac surgery (e.g. cardiac arrest, major haemorrhage). Methods: This is a retrospective study that analysed the incidence and impact of MAE which was the primary outcome in the UK population. The data was collected in 5 centres between October 2015 and June 2017, amassing 3090 surgical episodes. The incidence and risk factors for MAE, were assessed through descriptive statistical analyses and multivariate logistic regression. The secondary outcomes of life status at 6 months and the length of hospital stay were also evaluated to understand the impact of MAE on patients. Results: Out of 3090 episodes, 134 (4.3%) had a postoperative MAE. The majority of the episodes were in: neonates (47%, $P < 0.001$), high-risk cardiac diagnosis groups (20.1%, $P < 0.001$), episodes with longer times on the bypass (72.4%, $P < 0.001$) and urgent surgeries (57.9%, $P < 0.001$). Episodes reporting MAE also reported longer lengths of stay in hospital (29 days vs 9 days, $P < 0.001$). Furthermore, patients experiencing MAE were at a higher risk of mortality at the 6-month life status check (mortality rates: 29.2% vs 2%, $P < 0.001$). Conclusions: Key risk factors were identified. An important negative impact of MAE was found for patients. The identified risk factors could be used to profile and flag at-risk patients. Monitoring of MAE rates and closer investigation into the care pathway before and after individual MAEs in children's heart units may lead to a reduction in these terrible events.

Keywords :

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