**Predictors of acute neurological complication following tetralogy of Fallot operation in Serdang Hospital, Malaysia**


ABSTRACT

Background: The long waiting time for Tetralogy of Fallot (TOF) operation may potentially increase the risk of hypoxic insult. Therefore, the objective of this study is to determine the frequency of acute neurological complications following primary TOF repair and to identify the peri-operative risk factors and predictors for the neurological sequelae. Methods: A retrospective review of the medical and surgical notes of 68 patients who underwent TOF repair in Hospital Serdang, from January 2013 to December 2017 was done. Univariate and multivariate analyses of demographics and perioperative clinical data were performed to determine the risk for the development of acute neurological complications (ANC) among these patients. Results: ANC was reported in 13 cases (19.1%) with delirium being the most common manifestation (10/68, 14.7%), followed by seizures in 4 (5.9%) and abnormal movements in two patients (2.9%). Univariate analyses showed that the presence of right ventricular (RV) dysfunction, prolonged duration of inotropic support (≥7 days), prolonged duration of mechanical ventilation (≥7 days), longer length of ICU stays (≥7 days), and longer length of hospital stay (≥14 days), were significantly associated with the presence of ANCs (p0.05). The predictors for the development of postoperative delirium were pre-operative oxygen saturation less than 75% (Odds Ratio, OR=16.90, 95% Confidence Interval, 95%CI:1.36, 209.71) and duration of ventilation of more than 7 days (OR=13.20, 95%CI: 1.20, 144.98). Conclusion: ANC following TOF repair were significantly higher in patients with RV dysfunction, in those who required a longer duration of inotropic support, mechanical ventilation, ICU and hospital stay. Low pre-operative oxygen saturation and prolonged mechanical ventilation requirement were predictors for delirium which was the commonest neurological complications observed in this study. Hence, routine screening for delirium using an objective assessment tool should be performed on these high-risk patients to enable accurate diagnosis and early intervention to improve the overall outcome of TOF surgery in this country.



**Keyword:** Paediatrics; TOF repair; Delirium; Neurological complications; Post-operative