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Title: POST-OPERATIVE OUTCOMES IN CRITICALLY ILL RHEUMATIC HEART DISEASE PATIENTS AT THE SALAM CENTRE FOR CARDIAC SURGERY KHARTOUM (SUDAN): A 5-YEAR RETROSPECTIVE ANALYSIS (2017-2022)

Authors: Naomi Kebba, Jonathan Izudi, Dimiana Saber, Omer Salahaldeen Yousif Omer, Mohannad Abbass Ahmed Mouhammad Albashier, Sofia Gatti, Elena Giovanella, Tom Mwambu, Gina Portella, Salvatore Lentini, Martin Langer, Martin Langer

Background & Aims: Open heart surgery in patients who are critically ill from advanced Rheumatic Heart Disease (RHD), needs more postoperative support and carries a higher risk for mortality and morbidity. In low socioeconomic settings where resources are lacking, these patients will be passed over in favour of their more stable counterparts leading to increased mortality. We report on the outcome and analyse the factors associated with postoperative mortality among preoperatively critically ill RHD patients in our institution.

Methods: Over 5 years, between 2017 and 2022 May, 2542 RHD patients underwent open heart surgery. We analyzed the records of the 194/2542, who were critically ill before surgery. The primary outcome was postoperative death as time-to-event measure, from the time of surgery until discharge from the intensive care unit (ICU) and/or death, whichever comes first. Factors independently associated with postoperative mortality were identified using the Cox proportional hazard regression model at a 5% significance level, expressed as adjusted hazard ratio (aHR) and 95% confidence interval (CI). We compared survival differences using Kaplan-Meier curves and tested using the Log-rank test.

Results: Most patients (58.2%) were young (10-24 years), severely malnourished (79.4%), in NYHA stage III (47.9%) with a high Euroscore II (89.2%). Mitral valve was the most commonly affected valve (95.3% of patients) while Aortic valve was least commonly affected (33.9% of the patients). The proportions of triple, double, and single valve procedures were 29.9%, 56.4%, and 15.5% respectively. The overall in-hospital mortality was 14.9% (29/194), with an ICU mortality of 7.7% (15 patients). The median time to death was 24 days (IQR 20-46).

Preoperative risk factors for death were; male gender HR 2.70 (1.12-6.67), cardiac arrest before surgery HR 2.60 (1.11-6.10), while in the postoperative period, atrial fibrillation HR 2.89 (1.10-7.62), junctional rhythm HR 14.71 (3.71-58.24), acute kidney injury HR 3.18 (1.39-7.29) and need of higher adrenaline doses HR 2.37 (1.05-5.34) resulted as significant risk factors.

Conclusions: In our hospital the incidence of postoperative mortality among critically ill RHD patients undergoing cardiac surgery is high (14.9%), in spite of prolonged intensive care treatment. Earlier recognition and referral for surgery could save lives and resources in the hospital.