

Incidence, Etiology and Risk Factors of Unplanned Readmissions after Congenital Heart Surgeries

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Objective: The first year after congenital heart surgery (CHS) is a period of increased health care utilization. We analyzed rate, etiology, risk factors and patient mortality associated with unplanned readmissions within one year following CHS.

Methods: We retrospectively reviewed 262 patients undergoing CHS at our institution from 08/2011-06/2015. Scheduled readmissions including second stage palliation for single-ventricle patients were excluded.

Results: Seventy patients (27-infants, 21-children, 22-neonates) were readmitted 119 times (1.7times/patient). On multivariate analysis, age, STAT-category, surgery and intubation time, ICU and hospital length-of-stay (HLOS) were risk factors associated with unplanned readmissions. Leading causes of unplanned readmissions within 12-months post-CHS included viral illness (34%), respiratory distress (16%), gastrointestinal (14%) and cardiac causes (8%; Table-1). Forty-six (39%) of these readmissions were within 30-days post-discharge. Leading causes of 30-day readmissions included viral illness (33%), wound infections (15%) and cardiac causes (13%; Table 1). Median time-to-first readmission was 21 (IQR: 12-58) days. Median HLOS at readmission was 2 (IQR:1-8) days. The 1-, 3-, 6- and 12-month freedom from first readmission was 83%, 73%, 71% and 69% respectively. There was no significant difference in survival between readmitted and non-readmitted patients ($p=0.68$). Time-to-readmission and readmission frequency didn't impact patient survival ($p>0.05$).

Conclusions: Unplanned readmissions are common during the first year after CHS especially in high risk patients. Viral infections were the leading cause of unplanned readmissions. Readmissions didn't impact long-term survival of patients after CHS.

Table 1: Major primary etiologies of readmission after congenital heart surgery

Readmission Etiology	No. of Readmissions	No. of Patients	No. of Readmissions/patient	No. of 30-day readmissions
Viral illness	40	26	1.5	15
Respiratory distress	19	16	1.2	4
Gastrointestinal	17	14	1.2	4
Cardiac	10	10	1.0	6
Neurological	9	8	1.1	1
Superficial wound infections	8	8	1.0	7
Other	8	7	1.1	4
Infection other	5	5	1.0	2
Pericardial/pleural effusions	3	3	1.0	3
Total	119	70		46

Other=chylothorax, failure to thrive, anemia, weight loss

Infection other=otitis media, urinary tract infections, infectious cellulities