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Track Extubation in Pediatric Congenital Heart Disease Open Heart Surgical Patients in Pakistan

Mohammad Irfan Akhtar

Aga Khan University, mohammad.irfan@aku.edu

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Recommended Citation

Akhtar, M. I. (2015). Track Extubation in Pediatric Congenital Heart Disease Open Heart Surgical Patients in Pakistan. *Journal of the College of Physicians and Surgeons Pakistan*, 25(9), 708-708.

Available at: https://ecommons.aku.edu/pakistan_fhs_mc_anaesth/316

Feasibility and Safety of Fast Track Extubation in Pediatric Congenital Heart Disease Open Heart Surgical Patients in Pakistan

Sir,

Fast Track Extubation (FTE) in cardiac surgery is an established safe practice, which has revolutionized outcome of cardiac surgical patients especially in Congenital Heart Disease (CHD) open heart surgical patients. The strategies having an established role in reducing healthcare cost in pediatric CHD open heart surgical patients are not being practiced appropriately either due to the lack of awareness or apprehension regarding the complications of early extubation especially reintubation in cyanotic CHD surgical patients undergoing corrective or palliative procedure. Recently, an observational study has been done in the Risk Adjustment in Congenital Heart Surgery (RACHS) category 1, 2 and 3¹ with the objective of assessing the safety profile of fast track extubation at our setup. The success rate of the study was 77% with no reintubation in the selected patients as shown in Figure 1.² Of the total 71 patients included in the study, where 26 patients (36.62%) were extubated in the operating room, 29 (40.85%) were extubated within 6 hours of arrival in cardiovascular intensive care unit and 16 (22.54%) were unable to get extubated within 6 hours due to multiple reasons. The reasons for delayed extubation were

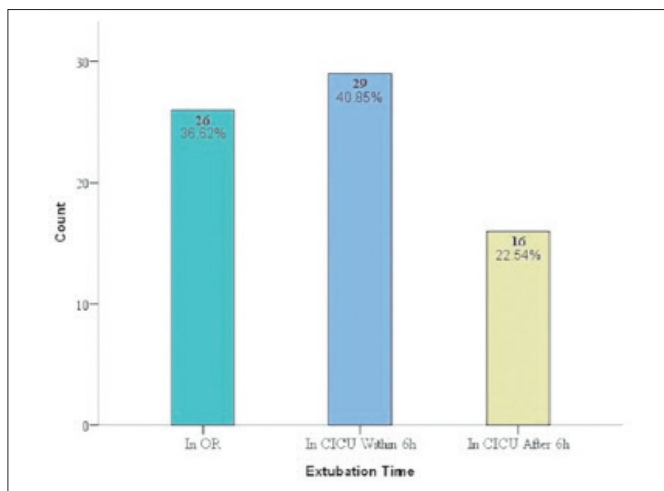


Figure 1: Success rate of fast-track extubation in congenital heart disease pediatric surgery patients. (OR = Operating room; CICU = Cardiac intensive care unit).

significant bleeding in 5 (31.3%) cases, hemodynamic instability (low cardiac output syndrome) in 4 (25%) cases, respiratory complication in 2 (12.5%), bleeding plus hemodynamic instability in 2 (12.5) cases, and triad of hemodynamic instability, bleeding and respiratory complication in 1 (6.5%) case. There was also a major reduction in the healthcare cost due to early discharge from the pediatric cardiac ICU. The cost reduction at our setup was 16 - 18% which is comparable to international pediatric cardiac surgery facilities.³ There was also reduction in CICU stay from 4 - 5 days to 2 days especially in TOF total repair patients.

After the success of FTE in CHD cardiac surgical patients with validated safety profile, we have successfully practiced on table extubation in acyanotic CHD cardiac surgical patients and tetralogy of fallot total repair patients. Early extubation is recommended in TOF total repair patients due to favorable effects of spontaneous breathing on right ventricle function. TOF patients have restrictive right ventricle physiology and positive pressure ventilation reduces right ventricle preload and can cause increase in afterload³ if lungs are inflated beyond functional residual capacity FRC.³ Delayed extubation also increases postoperative complications including low cardiac output state and arrhythmias.⁴

This practice has been brought into execution with the help of integrated team approach involving cardiac anesthesiologist, cardiac surgeon and pediatric cardiac intensivist. Cost is a major factor in our resource constraint population and no stone should be left unturned to cut down the healthcare cost keeping the safety on priority. The advantage of fast track extubation is an efficient turnover of patients at our pediatric CICU thus overcoming the previous backlog of pediatric CHD patients needing surgical intervention.

The basic objective of writing the letter is to raise awareness regarding the importance, safety, cost effectiveness and application of fast track extubation in CHD open heart surgical patients at pediatric cardiac surgery setup of our country. This fast tracking strategy is applicable in both cyanotic and acyanotic pediatric CHD open heart surgical patients.

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Mohammad Irfan Akhtar

Department of Anesthesia, The Aga Khan University Hospital, Karachi.

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Correspondence: Dr. Mohammad Irfan Akhtar, Assistant Professor, Department of Anesthesia, The Aga Khan University Hospital, Karachi.

E-mail: mohammad.irfan@aku.edu

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Received: September 10, 2014; Accepted: June 23, 2015.

