

Early Extubation Strategy in a Paediatric Cardiac Surgery Program.

Tamariz-Cruz O, Palacios-Macedo A, García-Benitez L.A, Diliz-Nava H, Araujo-Martínez A. KARDIAS Project, Mexico City, Mexico.

Outcomes				
		Early	Late	p value
Postop death	Yes	0% (0)	14% (3)	0.002
	No	100% (149)	86% (19)	
Reintubation	Yes	0% (0)	23% (5)	<0.001
	No	100 (149)	77% (17)	
Postop Complications	Yes	11% (17)	64% (14)	<0.001
	No	89% (132)	36% (8)	
ICU LOS (days)		3.4	10	<0.001
Hopital LOS (days)		6.1	12.9	<0.001

Background and Goal of the Study: Paediatric cardiac surgery programs show situations compromising sustainability such as: ventilator associated infections, prolonged in-hospital length of stay (LOS) or prolonged intubation periods. Our main goal was to demonstrate that instituting an early extubation (EE) program can make our results more efficient.

Material and methods: We included patients of all RACHS-1 score levels operated in the KARDIAS / ABC project from August 4th 2012 thru October 10th 2015. A pre established anaesthetic plan was based on intra operative dexmedetomidine-opioid infusion and pre-sternal closure bilateral intercostal nerves instillation (ropivacaine). Postoperative analgesia was based on opioid continuous infusion (low dose fentanyl) and sedation with dexmedetomidine.

Criteria to consider the possibility of EE were:

1. Weight > 10 Kg.
2. Lactate < 3 mMol/L.
3. No Down's Syndrome.
4. Acid-Base equilibrium.
5. No evidence of ventricular dysfunction on echocardiogram.
6. Age > 30 days.
7. DCP time length < 90 minutes.

The following definitions were established: Extubation in the operating room (EOR): Done in the OR; Early Extubation: Done in the paediatric cardiac intensive care unit (PCICU) in the first 24 hours; Late Extubation (LE): Done after the first 24 hours; Re-intubation: Requirement of new intubation either in the operating room or at any moment after the extubation in the PCICU.

1. **Mittnacht AJC, Hollinger I. Fast Tracking in Pediatric Cardiac Surgery. The Current Standing. Ann Card Anesth 2010; 13(2): 92-9.**
2. **Abdullah AA, Singh SK, Hamilton B et al. Early Extubation after Pediatric Cardiac Surgery: Systematic Review, Meta-analysis, and Evidence-Based Recommendations. J Card Surg 2010; 25: 585-95.**
3. **Bastero P, Di Nardo JA, Pratap JN et al. Early Preoperative Management after Paediatric Cardiac Surgery: Review at PCICS 2014. World J Pediatr Congenit Heart Surg 2015; 6 (4): 565-74.**

Results and discussion: 171 patients were included. EOR was achieved in 65.4% (112) and EE in 87.1% (149) Mean ICU-LOS for EE group was 3.4 days and for non EE 10 days (p< 0.001) In hospital-LOS for EE group was 6.1 days and for non EE 12.9 days (p< 0.0001) Infection percentage was 5% for EE group and 19% for non EE group. Neither mortality nor re-intubation were observed in the EE group.

Short-term outcomes

Mechanical ventilation time: Median 0 hrs / Mean 14.5 hrs

OR extubation 65.4% (112)

Early extubation 87.1% (149)

Conclusions: Early extubation strategy promoted efficiency in our congenital heart surgery program. Careful patient selection criteria along with predefined anaesthetic plan and a postoperative sedation / analgesia strategy are also required to reduce the possibility of reintubation. Special attention to adequacy of pain control and sedation is recommended in order to reduce reintubation or other complications.

Acknowledgements: The authors would like to acknowledge the invaluable collaboration of the nurse staff of the PCICU in the KARDIAS / ABC / INP project.

