No Guarantee for Success: Institutional Experience With a Fast Track Protocol for Surgical Repair of Atrial Septal Defects

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Introduction

• Fast track programs in pediatric cardiac surgery have been implemented to shorten perioperative period
• Goal is early weaning from ventilator, early extubation and discharge from ICU and hospital
• Requires multidisciplinary teamwork at each stage of patient’s perioperative experience (Figure 1)

Methods

• Retrospective chart review performed for quality improvement, IRB addendum obtained
• 53 patients undergoing ASD or sinus venosus repair from November 2014–November 2015
• 3 extubated in OR, 50 extubated in ICU
• Outcomes evaluated were extubation < 4 hours and time to hospital discharge, 29 patients extubated ≤ 4 hours and 21 patients extubated > 4 hours
• Statistical analysis: Not all continuous data found to be normally distributed using the Shapiro–Wilk Test, so Mann–Whitney Test used, Chi-Square Test used for binary data

Results

• Most common reported reason for delayed extubation was over-sedation (Figure 2)
• No significant difference in demographic variables including age, gender, weight, case start, OR time bypass time or cross clamp time
• No significant difference in premedication frequency, dose or route of administration
• Intraoperatively, no difference between groups with regard to midazolam dose, propofol rate or duration of infusion, acetaminophen administration or infiltration with bupivacaine
• Higher intraoperative morphine dose in delayed extubation group (Table 1)
• In ICU, no significant difference in dose of morphine given or frequency of additional benzodiazepines
• In ICU, propofol infusion rates were similar, however in delayed extubation group, propofol infusion times and time from infusion stop to extubation were longer
• Decreased hospital LOS in early extubation group (Table 2)
• Early and delayed extubation groups had similar CICU LOS (Figure 3)

Discussion

• Only significant difference in anesthetic technique between early and delayed extubation groups was higher intra-operative morphine dose in delayed extubation group
• Delayed extubation due to sedation may be related to timing of propofol infusion and context sensitive half time
• CICU LOS not significantly different and Hospital LOS slightly decreased in early extubation group

References