

[C-26] "In OR" Extubation in Total Cavo-Pulmonary Connection ("Fontan") Surgery

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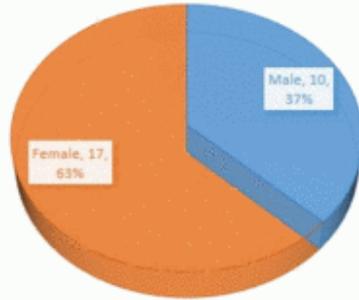
Early extubation in patients undergoing congenital cardiac anesthesia has been demonstrated in multiple settings to be safe and potentially beneficial to the patient. Spontaneous respiratory efforts may be particularly useful in patients with a non-pulsatile pulmonary arterial circulation, i.e. "Fontan" or Total Cavo-Pulmonary Connection (TCPC).

Normal respiration creates a negative intrathoracic pressure that helps "draw in" venous blood flow into the pulmonary vascular bed and the absence of positive pressure in the airways additionally minimizes impedance to pulmonary blood flow. It has become routine at our institution to attempt extubation at the conclusion of these procedures prior to transport to the ICU. As participants in the CCAS Database effort, we have attempted to collect data beginning January 1, 2010 on patient care, including airway management, extubation time in the OR (where applicable) and first blood gas in the ICU on all cardiac anesthesia cases. A review of the dataset at Texas Children's Hospital as of November 1, 2013 showed a total of 134 TCPC cases, including revisions of prior atrio-pulmonary type repairs. Of these, 107 cases (80%) were extubated in the operating room, with one being reintubated there. 27 cases were transferred to the ICU intubated. All of the patients undergoing these surgeries at our institution go on cardiopulmonary bypass, though most do not have an aortic cross-clamp applied. Our "typical" TCPC is performed whenever possible utilizing an extracardiac, non-fenestrated Goretex® tube graft. Reasons for remaining intubated may either be surgical (bleeding), cardiology (dysrhythmia or myocardial dysfunction), anatomic (abnormal airway), or anesthetic (excess sedation or muscular weakness). The data below demonstrates the results of the first ABG on arrival as well as basic demographic information on these patients.

In summary, "In OR" extubation appears to be a common and safe component of care at our institution in patients undergoing TCPC repair. The only significant difference found between those remaining intubated and those successfully extubated that we found in the data analyzed was gender, with females being more likely not to be extubated ($p < 0.01$). This could perhaps be a function of patient weight rather than gender, but we do not currently have that information in our dataset.

Parameter	Not Extubated	Extubated	P Value
Total (%)	27 (20%)	107 (80%)	
Male gender n(%)	10 (37%)	68 (63%)	0.016
Female gender n(%)	17 (63%)	39 (37%)	
Age (months)	49 [24-82]	51 [44-62]	0.5
pH	7.32 [7.29-7.34]	7.31 [7.27-7.34]	0.5
pCO ₂	47 [45-52]	47 [43-51]	0.3
pO ₂	156 [79-232]	182 [94-256]	0.3
Lactate	2.0 [1.8-3.5]	2.2 [1.6-3.2]	0.8

NOT EXTUBATED



EXTUBATED

