Introduction

Biventricular pacing using right ventricular (RV) and left ventricular (LV) leads can improve hemodynamics in patients with congenital heart disease (CHD), but it is unclear whether this occurs in the early postoperative period in children with CHD. Cardiac resynchronization therapy (CRT) using biventricular pacing has been shown to be effective in improving symptoms and survival in adults with congestive heart failure ***(Pham et al., 2005).***

There is currently much interest in the use of CRT in children with heart failure. However, unlike adults with left ventricular (LV) failure from ischemic heart disease or idiopathic dilated cardiomyopathy, congenital heart disease is the main cardiac problem in children. In the acute postoperative period after surgery for CHD, right ventricular (RV) dysfunction (and not just LV failure) can be a significant problem. ***(Janousek et al., 2001)***

Preliminary data for CRT in children with congenital heart disease undergoing surgical repair have shown acute benefits with increased systolic blood pressure and improved cardiac output associated with decreased QRS duration, (***Zimmerman et al., 2003).***

Many investigators have relied on the QRS duration as a marker for mechanical dyssynchrony, ***(Abraham et al., 2002) and (Bristow et al., 2004)***

However, the usefulness of narrow QRS duration as a descriptor of mechanical dyssynchrony in patients with heart failure has been questioned *(**Achilli et al., 2003**).*

Furthermore, it has been shown that some adult patients with heart failure and narrow QRS duration have been improved with CRT *(**Yu et al., 2003**).*

There is evidence from adult CRT studies showing the effectiveness of tissue Doppler imaging (TDI) for assessing mechanical dyssynchrony before attempting CRT and for post-therapy evaluation of the effectiveness of CRT ***(Schuster et al., 2003)***.

TDI is a newly developed echocardiographic modality that allows quantitative assessment of regional myocardial wall motion ***(Hashimoto, 2003) and (Abraham, 2002)***. It has been used to evaluate the effectiveness of CRT in adult patients. ***(Sun et al., 2004)***.

There is limited experience with CRT in children, and little is known about the optimal sites for CRT. Hemodynamic improvement has been shown with various RV pacing sites ***(Dubin. 2003)***.As well as biventricular pacing ***(Strieperet et al., 2004)***.