CONTROL ID: 800463
TITLE: EVALUATION OF TRICUSPID AND PULMONARY VALVES USING EPICARDIAL ECHOCARDIOGRAPHY - A COMPARATIVE STUDY

CONTACT (NAME ONLY): Ravi Kumbharathi
CONTACT (INSTITUTION ONLY): Burntwood Regional Health Authority

ABSTRACT BODY: Introduction (Abstract Submission): Intraoperative Echocardiography has a proven record in evaluation of heart function during cardiac surgery. Previous studies have demonstrated utility in epicardial imaging, particularly evaluating valve anatomy and function. We therefore sought to evaluate the utility of epicardial echocardiography of the tricuspid and pulmonic valves.

ABSTRACT BODY: Methods (Abstract Submission): After Institutional Review Board approval for this prospective observational study, 25 patients, >18 years old undergoing elective coronary arterial bypass grafting (CABG) +/- Aortic Valve Replacement (AVR) were recruited. Patients with atrial fibrillation, previous known tricuspid or pulmonic regurgitation or stenosis or pulmonary hypertension were excluded.

Transesophageal imaging including the basal transgastric view, 120° midesophageal long axis view, 4 chamber ME view(Doppler tricuspid) and 90° view of the arch(Doppler pulmonic) were acquired. Four epicardial views were obtained: tricuspid valve short axis, pulmonic valve short axis, pulse wave Doppler velocities across the tricuspid valve and continuous wave Doppler across the pulmonic valve. All views were taken in close temporal relationship with a HP-Sonos 5500 and an 8 MHz epicardial or 4-7 MHz transesophageal transducer. Images were read independently by two reviewers and results averaged for analysis. Bland Altman analysis was used for data analysis.

ABSTRACT BODY: Results (Abstract Submission): Of 25 patients enrolled, images could not be retrieved for 4 patients and data is available on 21 patients for interpretation. Three of these 21 patients developed atrial fibrillation and we were unable to complete the study as they became hemodynamically unstable requiring rapid commencement of cardiopulmonary bypass. Agreement between the observers was good with a bias of -0.4cm/sec(95% CI 10.63, -11.37) for E and A waves and 2.8cm/sec(95% CI 26.3, -20.7) for pulmonary velocity.

Bias with epicardial imaging versus TEE for E and A waves was 11.9cm/sec(95% CI 48.2, -24.4) and 6.8cm/sec(95% CI 28, -15) respectively and 0.08(95% CI 1.2, -1) for E/A ratio. Pulmonary velocity bias was 57.94(95% CI 192.9, -7698) with higher values with epicardial imaging than TEE.

ABSTRACT BODY: Discussion (Abstract Submission): There was a good agreement for Doppler measurements across the tricuspid valve; however the measurements across the pulmonary valve were significantly higher with epicardial echo versus TEE. Epicardial Doppler imaging was difficult through the tricuspid valve, and was further limited when minimal skin incisions were used.

2. JCVA 2003; 17: 422-429
3. Anesthesia Analgesia 1999; 89: 870-884
(No Table Selected)
(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: transesophageal, epicardial, tricuspid.