15. Measurement of esophageal temperature at two separate sites during pulmonary vein ablation

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Introduction: Pulmonary vein ablation (PVA) has been used to treat persistent supraventricular arrhythmias, in which a cardiologist first isolates and then thermally ablates the source of the arrhythmia. Since the esophagus is in close proximity to the left atrium, heat induced injury to the esophagus may occur. Although the incidence is low, the mortality rate is high. Luminal esophageal temperature (ET) monitoring is one of the most effective measures to minimize the risk of injury. In this retrospective study, we elected to analyze temperature changes during PVA at two different temperature monitoring sites in the esophagus.

Methods: The anesthetic technique was standardized and utilized general anesthesia, endotracheal intubation and an arterial line. ET monitors were placed at two mid-atrial locations, ET1 and ET2 separated by 1-1.5 inches in the esophagus, as determined by cardiologist using fluoroscopy. Temperatures at both ET1 and ET2 locations were recorded simultaneously when radio-frequency ablation was performed at different left atrial sites. The peak ET was recorded at each location. In particular, the increase over baseline ET and the difference between ET1 and ET2, were noted.

Results: Twenty five patients were studied. Ablation sites in the left atrium included the anterior, posterior, inferior regions and the pulmonary veins. The most significant increases in temperature were seen during ablation of the posterior left atrium ranging from 0.1 to 4.0 degrees. However, in 20 out of 25 patients, measurements of ET1 ≠ ET2. The absolute value of difference of temperature between ET1 and ET2 ranged from 0.4 to 3.8, with a mean of 1.3 and a standard deviation of 1.1.

Discussion: These findings suggest that measurement of temperature at two separate esophageal locations is more sensitive that one location in detecting temperature increases during PVA. The ablating electrode during PVA moves from different areas within the left atrium, and therefore, a wide area of temperature measurement is needed for more accurate monitoring. Furthermore, the most significant increases in temperature occurred when ablation performed in the posterior left atrium, adjacent to the esophagus. The implications of these observations suggest that one location of temperature measurement may not be accurate enough in detecting a “true” esophageal temperature. Further studies are needed to verify these findings in a prospective study and to ascertain whether this has any patient safety ramifications for preventing esophageal injury.

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16. Contrast induced nephropathy, a single Saudi tertiary center experience

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Background: Contrast-induced nephropathy (CIN) is a leading cause of hospital-acquired acute kidney injury. Limited data exists about CIN in Saudi Arabia. We...
17. Global and regional left ventricular function after arterial switch operation: A speckle tracking echocardiography study

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The arterial switch operation (ASO) is now days the standard procedure for transposition of the great arteries (d-TGA) repair. Nonetheless, reduced exercise capacity, coronary artery abnormalities, decreased coronary artery vaso-reactivity, reduced coronary flow reserve, proximal intimal proliferation, and reversible myocardial perfusion defects have been demonstrated in ASO patients. Despite of this, indices of systolic function, as assessed by standard echocardiography are within the normal range in ASO patients. Speckle-tracking echocardiography (STE), can detect early subclinical myocardial abnormalities in several diseases even in presence of normal left ventricular (LV) ejection fraction (EF). 

**Aim:** to assess LV myocardial deformation and torsion in asymptomatic ASO patients with normal LV EF (≥55%) by using two-dimensionally derived STE.

**Methods:** We studied: (a) Sixty-two asymptomatic patients (26 female) who have undergone 1-stage ASO for simple d-TGA, aged 8.5 ± 5.7 years, with a normal LV EF (≥55%); (b) Thirty-two age and sex comparable controls (14 female), aged 7.9 ± 4.9 years.

**Results:** In ASO patients, global LV longitudinal strain was significantly lower than in controls (−19.2 ± 2.9% vs −22.7 ± 2.4%, respectively, p < 0.0001). Longitudinal deformation was significantly impaired in the anterior and both anterior and posterior septal walls. In ASO patients global circumferential strain (−23.9 ± 4.8% vs −25.9 ± 4.1%, respectively, p = 0.06) and LV torsion (12.1 ± 4.8° vs 13.1 ± 5.4°, respectively, p = 0.351) were similar to those measured in controls.

**Conclusions:** To the best of our knowledge this is the largest study on ASO patients by using STE. We demonstrated that in asymptomatic ASO patients despite a normal LV EF (≥55%) there is a significant reduction in longitudinal myocardial deformation while circumferential deformation and LV torsion are preserved, in order to maintain a normal LV EF.

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18. Quality of life after successful percutaneous mitral Commissurotomy; 3 years follow up study

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Limited data are available on the effect of percutaneous balloon mitral commissurotomy (PMC) on quality of life (QOL) in patients with rheumatic mitral stenosis (MS). QoL is not easily defined as mere survival, the goal is not only to achieve survival, but also health, well-being and some reasonably good quality of living as well. The content of the Minnesota Living with HF questionnaire (MLHFQ) was selected to be representative of the ways pulmonary congestion and treatments can affect the key physical, emotional, social and mental dimensions of QOL.

**Aim:** To study the effect of successful PMC on the QOL after 3 years of follow up.

**Methods:** 50 patients with isolated moderate and severe rheumatic MS who underwent successful PMC with multi-track double balloon technique. All of the following parameters were measured before PMC and after 3 years of follow up using transthoracic echocardiography: Mitral valve area (MVA), mean diastolic PG (MDPG), right ventricular systolic pressure (RVSP) and pulmonary vascular resistance (PVR). Minnesota Living with Heart Failure questionnaire (MLHFQ) was applied before PMC and after 3 years of PMC.

**Results:** After 2 years of follow up, QoL was significantly improved in rheumatic MS cases who underwent successful PMC (p < 0.001). QoL improvement was significantly correlated with the gain in MVA (r = −0.29, p = 0.04). The improvement in QoL is much more better in the patients who maintained their MVA ≥ 2 cm² (t = −1.99, p = 0.05). The improvement in QoL is much more better in the patients who maintained their MVA ≥ 2 cm² after 3 years of follow up.

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