Abstract: P2149

Is 24-hour Holter ECG monitoring a useful baseline assessment for the detection of arrhythmias in patients with peripartum cardiomyopathy?

Authors:
C A Viljoen¹, J Hoevelmann², F Azibani², O Briton², A Chin¹, K Sliwa², ¹University of Cape Town, Division of Cardiology - Cape Town - South Africa, ²University of Cape Town, Hatter Institute for Cardiovascular Research in Africa - Cape Town - South Africa,

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Background: Peripartum cardiomyopathy (PPCM) is an important cause of pregnancy-associated heart failure, which occurs in previously healthy women towards the end of pregnancy or within the first five months post-partum. The 12-lead ECG is frequently abnormal in patients with PPCM. These abnormal ECG features predominantly include waveform abnormalities such as T wave inversion and a prolonged QT interval. However, data on arrhythmias remain sparse in this population. We aimed to evaluate whether 24-hour Holter ECG monitoring in addition to a routine 12-lead ECG recording is useful to detect arrhythmias in PPCM.

Methods and Results: Eleven consecutive, consenting patients with PPCM were prospectively enrolled, of which two women presented during pregnancy. In addition to clinical, echocardiographic and electrocardiographic data, a 24-hour Holter ECG was performed for all patients. This cohort had a median age of 32.25 years (IQR 26.35-35.65) and BMI of 27.77 kg/m²(IQR 24.04-37.18). Baseline clinical assessment recorded a median systolic blood pressure of 114mmHg (IQR 103-104) and diastolic blood pressure of 72mmHg (IQR 69-87). Overall, the left ventricle was dilated (LVEDD 63mm) with severely reduced left ventricular ejection fraction (median LVEF 31%, IQR 25-35). The 12-lead ECG recorded sinus tachycardia in more than half the cohort (median QRS rate of 88). With a median QTc interval of 451ms (IQR 411-470), a third of this cohort presented with a prolonged QTc interval. The average heart rate on Holter monitoring ranged between 73 and 119. Whereas none of the patients had any episodes of bradycardia, the average time in tachycardia on Holter monitoring was 30% (IQR 13-39). None of the 12-lead ECGs or Holter recordings found evidence of atrial fibrillation, supraventricular tachycardia or atrioventricular blocks. The Holter ECG recorded non-sustained ventricular tachycardia (VT) in two patients, both of which had a prolonged QTc interval on their baseline ECG and an LVEF of <35%. Subsequent management included an implantable cardioverter-defibrillator in the one patient and cardiac transplantation in the other. The three patients that were readmitted for heart failure during the study period had a significantly higher average time in tachycardia on Holter (44.33% ±26.41 versus 25.63% ±19.06). There was a poor correlation between the QRS rate on the 12-lead ECG and the average heart rate on Holter recordings (Spearman’s rho 0.267, P=0.430).

Conclusion: Holter monitoring may be more accurate than the 12-lead ECG in defining the extent of sinus tachycardia. This is important as sinus tachycardia has been shown to be associated with poor outcome in PPCM. Moreover, the Holter ECG was able to detect non-sustained VT in two patients, which influenced clinical decision making. Our findings highlight the importance of a larger study to evaluate the vulnerability of this population to the development of arrhythmias and its impact on long-term outcome.