Evaluation of Ventricular Arrhythmia with Vasospastic Angina by T-Wave Alternans Based on Holter Recording

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Background: T-wave alternans (TWA) has been known to be useful for evaluations of repolarization abnormalities and a predictor of ventricular arrhythmia. Ventricular arrhythmia in vasospastic angina (VSA) was reported to be associated with repolarization abnormalities. Therefore, we investigated the association between TWA and ventricular arrhythmia in VSA.

Method: We investigated max MMA-TWA and occurrence of non-sustained ventricular tachycardia (NSVT) in Holter recording for 45 consecutive VSA patients (21 males, 60.3±13.1 years-old). TWA ≥ 65μV was considered positive.

Result: NSVT were recorded in 6 patients. Max MMA-TWA in 6 patients with NSVT was significantly higher than those in 39 patients without NSVT (83±12 vs. 65±21 μV; p<0.02). Coronary vasospasm in Right coronary artery (RCA) was induced in 5 of 6 patients. Moreover, incidence of positive TWA was significantly higher in patients with RCA spasm (21/31 patients; 68%) than patients without RCA spasm (4/14 patients; 28%; p<0.01). Max MMA-TWA in 31 patients with RCA spasm was higher than those in 14 patients with vasospasm in other vessels excluding RCA.

Conclusion: There was a significant relationship between TWA and RCA spasm. Moreover, most of VSA patients with NSVT had not only RCA spasm but also repolarization abnormalities associated with high risk of ventricular arrhythmia.

Keywords: vasospastic angina, T-wave alternans, ventricular arrhythmia