

THE SIGNAL AVERAGED P-WAVE ECG FOR MEASUREMENT OF ATRIAL ELECTRICAL INSTABILITY IN PATIENTS WITH HYPERTENSION AND CONCENTRIC LEFT VENTRICULAR HYPERTROPHY!

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Abstract

Left ventricular hypertrophy (LVH) in course of the systemic hypertension is found as independent risk factor for arrhythmias and sudden cardiac death. The aim of our study was to evaluate signal averaged ECG of the P-wave (SAP ECG) as a tool to measure the atrial electrical instability in hypertensive patients (pts) with concentric LVH.

Study group included 39 pts with mild to moderate primary hypertension. Patients were divided into two groups: with concentric LVH and without LVH; LVH was diagnosed by echo cardiography (ECHO). By ECHO there were additionally measured the internal end-diastolic diameters and areas of left and right atria (LA, RA, LAar, RAar).

From SAP ECG the P duration (hfP), the root-mean-square of the last 20 msec of the averaged and filtered atrial signal (RMS_{20}) were calculated. By the 12-lead ECG the P duration (Pd) was calculated. Supraventricular arrhythmias were recorded during 24-hour ambulatory ECG monitoring.

Results: Duration of hfP was significantly longer in pts with than without LVH (121.8 ± 13.0 vs 112.8 ± 8.4 msec $p < 0.02$). RMS_{20} was similar in both groups. Pd from standard ECG was increased (114 ± 13 vs 107 ± 7 msec $p < 0.05$) in pts with than without LVH. Supraventricular arrhythmia occurred more frequent in pts with LVH.

Conclusion: SAP ECG in hypertensive pts with concentric LVH may be a good tool to evaluate atrial electrical instability.

Keywords: signal averaged P - wave ECG, atrial electrical instability, left ventricular hypertrophy, hypertension