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The P wave duration in patients undergoing cryoballoon pulmonary vein isolation for atrial fibrillation

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The pulmonary vein isolation remains the major target of atrial fibrillation ablation. The cryoablation lesions in the left atrium are supposed to disconnect the pulmonary vein from the atrium on the atrial side of the orifices. We hypothesized that the cryoballoon pulmonary vein isolation could result in the prolongation of the P wave duration.

The aim of the study was to assess the duration of the P wave in 12-lead electrocardiogram and the influence of pulmonary vein isolation on this parameter.

The study group included 29 patients (14 women and 15 men) 69.1+/-7.1 years of age undergoing cryoballoon ablation. In order to measure the P wave duration, we used the constant acquisition of electrogram and the electrocardiographic channels provided by LABSYSTEM™ Pro EP Recording System (Boston Scientific), magnifying the leads 64x. We calculated the duration in the simultaneously recorded 12-lead ECG, from the beginning of the earliest recorded P wave deflection, until the end of the latest P-wave deflection recorded in any lead. The P wave duration in the entire study group was 144.8+/- 13.6 ms before the ablation and increased significantly to 158.3+/-14.5 ms ($p<0.05$) after the procedure. The mean standard deviation of every single measurement considered separately was 4.6+/- 2.5 ms before the cryoablation and 4.7+/-1.9 ms after the procedure (p= n.s.), indicating very good reproducibility of the measurements.

The cryoballoon pulmonary vein isolation leads to the prolongation of the measured P wave duration. It seemed to result from conduction disturbances created by cryoablation. The clinical significance of the observed changes remains unknown.

Biography

Jacek Gajek has completed his MD at the age of 25 years from Wroclaw Medical University and postdoctoral studies from Wroclaw Medical University achieving PhD. He is the head of the Department of Internal Nursing in Deparment of Clinical Nursing at Wroclaw Medical University and a sucessful cardiologist and electrophysiologist. He has published more than 60 papers in cardiology journals and has been serving as an editorial board member of Advances in Clinical and Experimental Medicine.

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