Preventricular far-field sensing in the atrial channel of dual chamber pacemakers--an occasional cause of inappropriate mode switch.

INTRODUCTION AND AIMS OF THE STUDY: Atrial oversensing may trigger false positive mode switch to an asynchronous mode in dual chamber pacemakers. While myopotential oversensing and far-field R wave sensing within the postventricular atrial refractory period are well characterized, data about oversensing (near-field P wave or far-field R wave) within the atrioventricular delay is limited. Aim of the study was to determine the incidence of preventricular oversensing in the atrial channel of current dual chamber pacemakers.

METHODS: Consecutive patients with dual chamber pacemakers who were in sinus rhythm and who showed no myopotential oversensing were included in the study. Atrial sensitivity was programmed to the maximal available value and atrioventricular delay was prolonged when necessary for intrinsic atrioventricular conduction.

RESULTS: Ten out of 100 (10%) patients showed oversensing within the atrioventricular delay at highest levels of atrial sensitivity, median sensing threshold for the signals was 0.35 mV, and the median coupling interval between preventricular atrial oversensing and the ventricular sensed event was 20 ms.

CONCLUSION: The incidence of inappropriate mode switch caused by atrial preventricular oversensing related to near-field P wave or far-field R wave oversensing in dual chamber pacemakers is up to 10%.
Interpretation of pacemaker Holters should consider oversensing within the atrioventricular delay as a differential diagnosis to true episodes of atrial tachyarrhythmias.