Aging dilates atrium and pulmonary veins

implications for the genesis of atrial fibrillation

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摘要

Abstract

Backgrounds: Aging plays a critical role in the pathophysiology of atrial fibrillation (AF). The left atrium (LA) and pulmonary veins (PVs) are essential components for the genesis and maintenance of AF. The purpose of this study was to investigate the effects of aging on the AF substrate and the initiator (PVs).

Methods: A total of 180 patients undergoing multidetector CT were enrolled and classified into six groups according to the decade of their age. LA, LA appendage (LAA), and orifice of the four PVs were measured.

Results: The LA anterior-posterior diameter and wall thickness became increased with aging after the age of 50 years ($p < 0.001$). Similarly, the LAA and four PV trunks also became dilated after the patients were > 50 years old ($p < 0.001$). The anterior wall was consistently thicker than the posterior wall in each group. Aging also increased both anterior and posterior wall thickness after the patients became > 50 years old. However, LA diameter, PV diameter, and LA wall thickness in the patients aged 70 to 79 years and > 80 years did not significantly differ. Age correlated well with the four PVs, LA diameter, and wall thickness with linear regression.

Conclusions: Age significantly determines LA and PV structures. These findings show the important contributing effects involved in aging-induced AF in the general population.

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