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Circulating endothelial cells flow mediated dilatation % as markers of endothelial dysfunction in paroxysmal lone atrial fibrillation

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Atrial fibrillation (AF) is the most prevalent sustained cardiac arrhythmia in adult population. Aim of the present study is to evaluate the association of paroxysmal lone AF with endothelial dysfunction in young patients. Two groups of participants were prospectively enrolled. The first group comprised of 70 patients with recurrent paroxysmal lone AF. The second group comprised of 20 healthy controls in sinus rhythm matched by age and gender. All the participants underwent physical examination, laboratory analysis (including determination of C-reactive protein (CRP)), standard echocardiography, exercise-stress testing, brachial artery Flow Mediated Dilatation (FMD) percent and Circulating Endothelial cells (CECs) by flow cytometry were assessed. There were no differences between the 2 groups regarding age, gender and most clinical, laboratory and echocardiographic characteristics (all $p>0.05$ except CRP level). FMD% of lone AF patients was significantly lower 6.4±1.6 versus 6.4±1.6 ($p<0.0001$) than FMD of healthy controls. CECs count was significantly elevated in lone AF patients compared to controls 24.7±7.2 versus 13.2±3.8 ($p<0.0001$). In the multivariate analysis, the independent FMD%, CECs determinants in our study population were the duration of attacks and CRP level. Paroxysmal AF is associated with systemic endothelial dysfunction even in relatively young patients with no cardiovascular disorders or risk factors. Duration of the attack and high level CRP are independent contributors to lower FMD% and higher CECs which may confer the risk for more profound endothelial damage.

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