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# Endothelial Dysfunction in Paroxysmal Atrial Fibrillation as a Prothrombotic State: Comparison with Permanent/Persistent Atrial Fibrillation.

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### Abstract

**Aim:** Atrial fibrillation (AF), regardless of subtype, is associated with a prothrombotic state, which is related to endothelial dysfunction (ED). We hypothesized that paroxysmal atrial fibrillation (PAF) patients have endothelial dysfunction, and this may partially explain the high thromboembolic risk and poorer outcome in this category of patients. **Methods:** The study population consisted of 100 consecutive outpatients with AF (mean age  $65.9 \pm 7.9$  years; 68 (68%) male) and 21 characteristics and comorbidity matched control subjects (mean age  $64.8 \pm 7.0$  years; 13 (61.9%) male). AF patients were divided into the PAF group ( $n=50$ ) and permanent/persistent AF (PeAF) group ( $n=50$ ). Reactive hyperemia pulse amplitude tonometry index (RHI) was measured to evaluate endothelial function. **Results:** RHI was significantly lower in the PAF ( $1.67 \pm 0.30$ ) and PeAF ( $1.63 \pm 0.28$ ) groups in comparison with control subjects ( $2.12 \pm 0.40$ , both  $p < 0.001$ ). There was no significant difference in RHI between the PAF and PeAF groups ( $p = 0.88$ ). On linear regression analysis, both PeAF and PAF are significant independent predictors of RHI. **Conclusions:** In conclusion, ED in PAF patients was comparable to PeAF patients, and the presence of PAF itself is a contributing factor for ED independent of other coexisting comorbidities. This may provide a mechanism explaining why the risk of thromboembolism in PAF is comparable with PeAF patients.

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