

Relation Between High Sensitivity C-Reactive Protein And Thromboembolic Risk Markers Assessed By Echocardiography In Patients With Nonvalvular Atrial Fibrillation

Abdelhakeem Selem MD, Ahmed Shawky MD, Ahmed Shaker MD

ABSTRACT

INTRODUCTION: There is strong association between inflammation and atrial fibrillation (AF), as high- levels of high-sensitivity C-reactive protein(hs-CRP) have been noted to be higher among patients with AF. AF promotes thromboembolism through a variety of mechanisms, blood stasis, endothelial dysfunction and inflammation.

OBJECTIVES: This study aimed to assess the relationship between hs-CRP as inflammatory marker and the risk of thromboembolism in patients with non valvular AF.

METHODS: This study included 100 patients with non valvular AF referred to transesophageal echocardiography(TEE) before cardioversion or in patients with stroke to evaluate thromboembolic markers (LAA thrombus, LAA low flow velocity, SEC), transthoracic echocardiography(TTE) to measure LA anteroposterior diameter (AP), LA area, and LV EF and hs-CRP blood level .The patients divided into two groups Group (A) included 26 patients with hs-CRP \geq 4.5 mg/dl Group (B) included 74 patients with hs-CRP <4.5mg/dl.

RESULTS: Group (A) patients were significantly older ($p = 0.003$), have longer duration of AF ($P=0.003$), higher left atrial size (LA AP diameter. & LA area $P<0.001$), lower LVEF ($50.923 \pm 8.291\%$ vs $57.054 \pm 7.83\%$ $P = 0.021$), higher incidence of thromboembolic markers as LAA thrombus (76.9% vs 18.92% $p < 0.001$), dense SEC (53.84% vs 18.92% $p < 0.001$) and LAA low flow velocity (17.058 ± 2.751 vs 26.986 ± 9.083 , $p < 0.001$) and higher CHADSVASc score (4.692 ± 1.032 vs 1.838 ± 1.118 , $p < 0.001$) compared to group (B). Hs-CRP showed significant positive correlation with age ($r=0.514$, $p < 0.001$), CHADSVASc ($r=0.603$, $p < 0.001$), LA diameter ($r=0.628$ $p < 0.001$), LA area ($r = 0.525$, $p < 0.001$), SEC ($r=0.603$ $p < 0.001$), LAA thrombus ($r = 8.313$, $p < 0.001$) and AF duration ($r = 2.877$, $p = 0.006$) and significant negative correlation with LAA emptying velocity ($r = -0.530$, $p < 0.001$), filling velocity ($r = -0.487$, $p < 0.001$), and LVEF ($r = -0.317$, $p = 0.025$). The cut-off value of hs-CRP >4.5 mg/ dl had sensitivity, specificity, positive & negative predictive values and accuracy 95 %, 90.3% ,92.9, 97 and 93% respectively for predicting thromboembolic risk in patients with non valvular AF.

CONCLUSION: High-sensitivity C- reactive protein (hs-CRP) level is suitable to predict thromboembolic markers in patients with non-valvular AF. Therefore, it can help to predict the presence of these markers among AF patients in combination with established clinical risk score (CHA2DS2-VASc score).

KEY WORDS: Thromboembolic risk, hs-CRP, non valvular atrial fibrillation

Departement of Cardiovascular, Faculty of Medicine, Zagazig University