Abstract  BACKGROUND:

The underlying mechanisms of increased risk of thrombo-embolism in atrial fibrillation (AF) are not completely understood; however, substantial evidence supports that AF is associated with a prothrombotic state. Accordingly, we hypothesized that strict rate control could attenuate platelet activity and thrombotic state in patients with non-valvular AF.

METHODS:

Seventy-five patients with non-valvular AF were divided into 2 groups based on heart rate: (1) normal ventricular rate (n = 34, 18 female) and (2) high ventricular rate (n = 39). Thirty-three sex- and age-matched subjects in sinus rhythm were included as control. Thirty patients with high ventricular rate (16 female) were successfully followed. Markers of platelet function were measured at baseline and repeated 1-month after adequate rate control in high ventricular rate group.

RESULTS:

Serum fibrinogen levels were significantly higher in AF patients with high ventricular rate than that in controls. Mean platelet volume, soluble CD40L and β-Thromboglobulin were significantly higher in AF patients with high ventricular rate than those in both AF patients with normal ventricular rate and controls. Soluble CD40L and β-Thromboglobulin were significantly higher in AF patients with normal ventricular rate than those in controls. One-month after adequate rate control, serum fibrinogen, soluble CD40L and β-Thromboglobulin levels significantly decreased (from 2.26 ± 1.02, 85.01 ± 37.05, 3.10 ± 0.90 to 1.55 ± 1.08, 66.34 ± 33.72, 2.71 ± 0.53; p < 0.001, p = 0.002, p = 0.03, respectively) in high ventricular rate group.

CONCLUSIONS:

AF patients with high ventricular rate had increased indices of platelet activity and thrombotic state. Furthermore, strict rate control significantly decreased indices of thrombotic state and platelet activity in those patients.