ABSTRACT

The purpose of this research was to find out the mechanism of thrombus formation in the left atria of patients with mitral stenosis.

A high degree of stenosis could conceivably alter the blood flow through the stenotic valve leading to endothelial dysfunction which may then affect blood viscosity, platelet activity, blood coagulation and fibrinolysis, i.e those factors known to be important for thrombus formation.

The nature of the research was observational-analytic using a case control design. Case group consisted of severe mitral stenosis patients showing thrombus in their left atria and mild mitral stenosis patients without thrombus, while control group included normal healthy persons. Age and sex of the three groups were adjusted to match and a normal distribution test was then performed. The obtained data were statistically analyzed using one way analysis of variance (Anova), covariate analysis and linear trend analysis.

The results showed a positive correlation between the degree of mitral valve stenosis with endothelial dysfunction, platelet activity, coagulation activity and blood viscosity respectively and a negative correlation with fibrinolytic activity. Endothelial dysfunction as a covariate influenced almost all parameters except blood viscosity and FDP-dimer, one of the parameters of fibrinolytic activity.

From the results stated above, it could be concluded that the narrower the mitral valve area, the slower the stasis and the stronger the turbulence will be in the left atria causing endothelial dysfunction and loss of nonthrombogenic endothelial surface, thus triggering platelet activity.

The increase in blood viscosity and coagulation activity accompanied by a decrease in fibrinolytic activity became triggering factors for thrombus formation, the composition of which was a mixture of white thrombus consisting of platelets and red thrombus containing fibrin and erythrocyte.

Key words : Mitral stenosis, thrombus formation, platelets, blood coagulation, blood viscosity, fibrinolysis.