Effect of a Recombinant Plant Elastase Inhibitor with Anti-inflammatory Action on a Rat Model of Venous Thrombosis

Oliveira, C. 1; Valois, M.V. 1; Ottaiano, T.F. 1; Lima, M.A. 1; Miranda, A. 2; Nader, H.B. 1; Sampaio, M.U. 1; Oliva, M.L.V. 1 and Maffei, F.H.A. 3

Departamento de 1Bioquímica, 2Biofísica, EPM-UNIFESP, São Paulo; 3Departamento de Cirurgia e Ortopedia, Unesp, Botucatu, Brazil

We had demonstrated previously the anti-inflammatory effect of a serine and cysteine peptidase inhibitor, BbCI that blocks elastase, cathepsin G and cathepsin L. The recombinant rBbCI, expressed in E. coli, was purified and characterized according to the activity against human neutrophil elastase (HNE). In this study, we are investigating the effect of rBbCI in experimental venous thrombosis model. Wistar rats were anaesthetized, and randomly allocated into 5 groups: rBbCI (1.4 mg/kg), rBbCI (0.45 mg/kg), unfractionate heparin (UFH) (100 IU/kg), UFH (50 IU/kg) and sodium chloride (control). Twenty minutes after intravenous drug administration, thrombosis was induced by ligation of the vena cava and its branches. Four hours latter, the animals were re-anesthetized and the vein was dissected free and opened. Thrombus, if present, was withdrawn and weighted. Activated partial thromboplastin time (APTT) and Prothrombin time (TP) were measured at the end of the experiment in blood taken by cardiac puncture and the animals were sacrificed by an over dose of anesthetics. A significant decrease in the thrombus weight in relation to the control group was verified in the heparin 100 IU/kg and rBbCI 1.40 mg/kg groups (13.00 ± 1.45 mg vs 0.38 ± 0.08 mg and 3.30 ± 0.66), without difference between these two groups. The other groups (UFH 50 IU/kg, rBbCI 0.45 mg/kg) did not differ from control. No differences in coagulation parameters were detected at the end of experiment. Further studies must be performance by using other thrombosis models and associated therapy (rBbCI and anticoagulants).

Word Keys: elastase, heparin, thrombosis.

Supported by: FAPESP, CNPq and CAPES