

## **Abstract**

**Introduction:** Hip fracture surgery is the particular problem of very old patients (>75 years), with high risk of VTE (up to 80%). It is essential to provide VTE prophylaxis. Patients advanced age and their polymorbidity contribute to the thrombophilic status.

**Objectives and methods:** The aim of the study was to determine the changes of coagulation within the 28 post-operative days in 41 patients over 75 years who underwent hip fracture surgery. Another object was to determine acute phase response and an endothelial activation. The third task was to determine how affected is a key component of hemostasis, FXa activity by its specific inhibitor fondaparinux and enoxaparin, which inhibits FXa and thrombin in a 4:1 ratio and if there is bleeding complication in such a risk group patients after antithrombotics long-term administration. Patients were randomly divided into two anticoagulant groups: fondaparinux (n = 23) and enoxaparin (n = 18). **Results:** Thrombophilia is demonstrated by a reactive increase of the most of these parameters preoperatively and reveals the effect of the initial trauma. A surgery further aggravates this reaction. This inflammatory and secondary prothrombogenic condition persisted until postoperative day 28. Both antithrombotics effectively inhibit thrombin generation without causing major bleeding symptoms, despite increasing levels of anti FXa activity in fondaparinux group. Increased levels of sICAM-1 persist until 28 postoperative day and suggest endothelium activation. Selectins (sP, sE), however, showed no increase. In enoxaparin group a weak statistically significant correlation between induced inhibition of FXa and the level of TFPI has been found ( $r = 0,18$ ;  $p = 0,03$ ).

**Conclusion:** Both antithrombotics prophylactic administration was safe for geriatric patients. Considering the persistent thrombophilic state, extended prophylaxis is indicated in these high-risk operations.