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## **Assessing a strategy to shorten the time to surgery in in patients with chronic antiplatelet therapy and proximal femoral fracture**

### **ABSTRACT**

**Background:** Patients with proximal femur fracture benefit from early surgery. In patients under chronic antiplatelet treatment, general anesthesia is indicated for early surgery. General anesthesia in comparison with neuraxial anesthesia delays hospital discharge with the risk of increasing complications. However, the time of antiplatelet drug activity should be regarded for implementing neuraxial anesthesia because of the potential risk of epidural hematoma. Therefore in clinical practice, for implementing neuraxial anesthesia, the surgery is delayed depending on the antiplatelet drug used by the patient. Our main goal was to assess the feasibility of implementing a strategy for an early surgery under neuraxial anesthesia guided by a platelet function test.

**Methods:** Multicenter, randomized, open-label, parallel clinical trial. Patients were randomized to either early surgery (experimental group) or delayed surgery (control group), both under neuraxial anesthesia. Early surgery was programmed when functional platelets, measured by PlateletWorks<sup>®</sup>, were higher than 80x10<sup>9</sup> per litre. The primary outcome was the time between admission and surgery. Secondary outcomes were platelet function, postoperative bleeding, medical and surgical complications, mortality, quality of life (QoL) and cost.

**Results:** 156 patients were randomized. The median time to surgery was 2.3 days (IQR 1.5-3.73) for the experimental group and 4.9 days (4.4-5.6) for the control group. One-third of the patients did not achieve the number of functional platelets on the first day from admission, requiring two or three tests. During the perioperative period, there was no difference in clinical outcomes between groups, including QoL. Total costs during the 1-month study period were higher for the delayed surgery group (€18 330.22) than for the early surgery group (€16

463.06). The incremental cost was negative at €1867.16 and resulted statistically significant ( $p < 0.05$ ). The incremental cost-effectiveness ratio (ICER) for early surgery was negative at €726.52 per day.

**Conclusions:** A individualized strategy using a platelet function test shortens the time to surgery with neuraxial anesthesia in patients with proximal femur fracture and chronic antiplatelet treatment. This intervention is cost-saving and cost-effective. More powered randomized clinical trials are needed to assess the clinical impact and safety of this strategy.