Does the Treatment of Hip and Proximal Femur Fractures Within 24 Hours Affect 1-Year Mortality?

***Konrad Schütze, MD**; Florian T. Gebhard, MD, PhD; Alexander Eickhoff, MD; Raffael Cintean, MD; Carlos Pankratz*

Purpose: Proximal femur fractures and hip fractures in the elderly are a rising challenge for orthopaedic trauma surgeons all over the world. The perioperative management and operative timing of these patients differs between countries. In Germany all hip and proximal femur fractures have to be treated within 24 hours by law since 2021. Our objective was to determine the effect of a treatment within 24 hours and the accompanying risks.

Methods: Between 2016 and 2020 hip and proximal femur fractures treated within 24 hours in a Level I trauma center were included in this study. A retrospective chart review of 1051 patients (mean age 80 ± 12 years; 694 women and 357 men) treated either with dynamic hip screw/femoral neck system (DHS) (n = 151), hemi- or total hip arthroplasty (HA) (n = 266), or proximal femur nail (PFN) (n = 634) was performed. Using the national resident registry 1-year and 2-year mortality of all patients could be evaluated. Primary outcome measures were mortality and surgical and nonsurgical complications.

Results: Mean time to surgery was 10 ± 6 hours and was significantly longer for patients treated with HA compared to DHS and PFN (14 ± 6 hours vs 9 ± 5 hours vs 8 ± 5 hours). Anticoagulation drugs were taken by 49.1% of the patients. Overall, 1-year mortality was 29.5% and 2-year mortality was 40.1%. The 1-year mortality was significantly higher in the group treated between 12 and 24 hours with 31.4% (n = 340) vs 28.5% (n = 711) in the group treated before 12 hours ($P<0.05$). However, there was no difference in the number of surgical and nonsurgical complications. Logistic regression analysis showed significantly increased mortality with higher age, patients suffering pneumonia or cardiac events, and with treatment between 12 and 24 hours.

Conclusion: Treatment within 24 hours of hip and proximal femur fractures shows no improvement in 1-year and 2-year mortality compared to the international literature but is challenging to accomplish even in a Level I trauma center.