[O115] INFECTION AFTER FRACTURE FIXATION OF THE TIBIA: ANALYSIS OF HEALTHCARE UTILIZATION AND RELATED COSTS

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Aim: The objective of this study was to define hospital-related healthcare costs associated with infection after fracture fixation (IFF) of the tibia and identify the subset of clinical variables relevant in driving these costs within the Belgium's healthcare system.

Method: Between January 1st 2009 and January 1st 2014, a total of 358 patients treated operatively for AO type 41, 42 and 43 tibial fractures, were included in this study. The calculated costs were related to the Belgium's healthcare financing context and limited to costs induced by hospital related care. Five main hospital-related cost categories were studied: honoraria, materials, hospitalization, day care admission, and pharmaceuticals. In addition, a total of 19 clinical and process variables were defined.

Results: The median total treatment cost for all tibial fractures was €6.962 euro (IQR €4932 – €10.972), with AO type 42 being the most expensive fracture type. In 12 (3.4%) patients the treatment was complicated by deep (implant-related) infection. Subsequently, the treatment costs for deep (implant-related) infection were almost 7-times higher compared to non-infected patients (€44.680 vs. €6.855 $p<0.001$) with hospitalization, length of stay (LOS), accounting for 50% of the total amount of the cost. The bivariate correlation between total treatment costs and LOS was close to 1. Multivariate analyses showed deep (implant-related) infection, non-union, age and ASA-3 as most important drivers ($p<0.001$) for both the total treatment costs and LOS. Moreover, the LOS was also driven by a delayed staged surgery protocol.

Conclusions: One of the most challenging complications in trauma surgery is the development of IFF. Infections associated with fracture fixation devices result in significant patient morbidity and a prolonged treatment period. Currently, there is a lack of data regarding the definition, functional outcome and health care burden of this musculoskeletal complication. This study shows that treatment costs for deep (implant-related) infection were almost 7-times higher compared to non-infected patients. Furthermore, LOS accounted for 50% of the total amount of the cost.
This study shows that future research needs to focus more on prevention rather than treatment strategies, not only to reduce patient morbidity but also to reduce the socio-economic impact.