

Biological Predictors of DHS Implant Failure in Extracapsular Neck of Femur Fractures: A 10-year Follow-Up Study

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Fractures of the Extracapsular Neck of the Femur (ENoF) are common among the elderly, with a considerable morbidity and mortality rate. Surgical fixation with a dynamic hip screw (DHS) is the most economical and commonly used surgical intervention. Follow-up studies related to surgical outcomes have not been published in Sri Lanka. The study assessed the predictive value of biological parameters recorded on admission in predicting DHS implant failure. A descriptive longitudinal study was conducted on a cohort of patients (n=514). Biological parameters on admission and surgical outcomes in the 2nd, 5th, and 10th postoperative years were assessed. Biological parameters were compared between implant-failure (n= 259) and non-failure groups (n= 255) using t-tests and logistic regression analysis to find their association with surgical outcomes and prognostic values, respectively. Statistically significant associations were found between implant failure and higher weight, BMI (p=0.000) and lower BMD Spine, BMDFN, TScO FN (p=0.000), and TScO Spine (p=0.006). Further, BMD Spine, BMDFN, TscO FN and TscO Spine were identified as statistically significant predictors of implant failure (p<0.05). The stepwise regression indicated that except body weight and age, all the other biological parameters are useful for predicting implant failure. ROC curve showed 86% potential to predict the failure of DHS implants by the prognostically significant parameters. The study concludes that some of the on-admission biological parameters of patients with ENoF have the potential to predict the surgical outcomes following DHS implants. The parameters which reflect the bone mineral density of the femur neck and spine are the most predictive variables of implant failure.

Keywords: *fracture neck of femur, DHS implant failure, bone mineral density*