Factors Affecting Length of Stay in Fracture Patients in Malawi: Insights From a Multicenter Registry Study

Benjamin P. Cassidy, ATC; Teja Yeramosu, BA; Foster J. Mbomuwa, BS; Paul Chidothi; Claude Martin, MD; William J. Harrison, (Ortho); ***Kiran Agarwal-Harding, MD****; Linda Chokotho*

Purpose: We sought to evaluate factors associated with increased length of stay (LOS) for patients admitted to 2 Malawian urban tertiary hospitals for fracture care. This study hypothesizes that age, injury type, and health-care resources significantly contribute to prolonged hospitalization for fracture care.

Methods: We retrospectively reviewed 4928 patients in the Malawi Fracture Registry. For patients with isolated fractures, multivariate linear regression was used to evaluate associations between LOS and several covariates: age, sex, schooling, delayed presentation (≥2 days from injury), mechanism (assault, fall, road traffic injury [RTI], sport, other), referral status, open fracture, health-care provider (orthopaedic clinical officer or orthopaedic surgeon), fixation strategy, and fracture site.

Results: From 2017 to 2020, mean LOS decreased from 17.4 to 11.0 days, with overall mean LOS being 15.78 ± 0.29 days. LOS was highest for patients who had femur fracture (28.49 ± 0.75 days), staged internal fixation (28.68 ± 1.95 days), evaluation by a surgeon (23.77 ± 0.55 days), delayed presentation ≥2 days (21.92 ± 0.81 days), RTI (21.87 ± 0.55 days), were >65 years old (21.86 ± 1.21 days), and were referred (17.99 ± 0.44 days). Multivariate regression revealed that children had shorter LOS (β = –2.08 ± 0.56 days) and geriatric patients had longer LOS (β = 1.77 ± 0.80 days) compared to adults aged 19-64 years (P = 0.001). Delayed presentation resulted in 2.10 ± 0.43 days longer stay (P<0.001), and RTI resulted in 3.25 ± 0.62 days longer stay than falls (P<0.001). Referred patients stayed 1.17 ± 0.41 days longer than those who self-referred (P = 0.017). Patients with femur and hip/pelvis/acetabulum fractures stayed 10.37 ± 0.78 days and 3.98 ± 1.66 days longer than those with upper extremity fractures, respectively (P<0.001), when controlling for injury mechanism, open fracture, treating provider, and treatment type. Those receiving staged internal fixation stayed 6.75 ± 1.54 days longer than those treated nonoperatively (p<0.001). No difference in LOS was observed based on sex or open/closed fracture type.

Conclusion: Prolonged LOS was observed in Malawian fracture patients with older age, delayed presentation, RTI, proximal lower extremity fractures, and staged internal fixation. Femur fracture was the independent risk factor with the largest increase in LOS. Targeted strategies to expedite comprehensive fracture care should be implemented for patients at risk for prolonged LOS.