Epidemiology and Factors Associated with Operative Treatment of Elbow Injuries in Malawi

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Purpose: The burden of musculoskeletal trauma in low-income countries like Malawi is high and rising. Essential trauma care and surgical capacity are limited and few studies have examined management of upper extremity trauma, particularly elbow fractures, which are common and debilitating if treated nonoperatively. We investigated the epidemiology and factors associated with operative treatment of elbow fractures in Malawian public hospitals.

Methods: The Malawi Fracture Registry included 2181 patients with elbow fractures, including 1866 (85.6%) children and 315 (14.4%) adults, seen at 2 rural district and 2 urban central hospitals between September 2016 and March 2020. We used multivariate Poisson regression to evaluate association between operative treatment and various demographic and injury characteristic covariates.

Results: Nonoperative treatment, usually involving cast/splint immobilization ± closed reduction, was performed for 1708 of 1866 children (91%) and 258 of 315 adults (82%). Surgery was performed for 158 children (8.5%) and 57 adults (18.1%). For children, surgical treatment was associated with: male gender (relative risk [RR] 1.774, $\chi 2$ P = 0.026), presentation to a central hospital (RR 5.696, P = 0.003), spiral/oblique/wedge/complex fracture types (RR 1.612, P = 0.017), and open fractures (RR 10.603, P<0.001). For adults, surgical treatment was associated with male gender (RR 13.042, P = 0.013) and open fractures (RR 5.731, P<0.001).

Conclusion: Most elbow injuries in Malawi are treated nonoperatively. Males had higher rates of surgery than females, among children and adults. Our findings underscore the need for improving surgical capacity and increasing the equity of care.