

Barriers in extremity fracture management in low- and middle-income countries: a trauma care provider's perspective

Background: Suboptimal fracture treatment is the most common cause of musculoskeletal impairment in low- and middle-income countries (LMICs). Many circumstances such as availability of equipment, costs, and knowledge, influence trauma care providers in decision-making in fracture management. No data on the impact of these barriers is available.

Aim: This global case-vignette study will identify the barriers trauma care providers perceive in providing extremity fracture treatments in LMICs.

Methods: An online two-part survey of trauma care providers in LMICs is being performed. The first part documents basic background information and availability of hospital resources necessary for management of complex extremity fractures, such as availability of X-ray machines, Plaster of Paris (POP) and orthopaedic implants. The second part of the survey entails eight expert-based case-vignettes, presenting a background, physical examination and X-rays of fictional patients suffering complex traumatic extremity fractures. The enclosed questions focus on local fracture treatments and participants' knowledge and rationales regarding management of these fractures. Descriptive and statistical analysis will be performed in subdivided groups regarding level of training, level of healthcare facility (primary, secondary or tertiary referral), and countries' World Bank classes. Results: An interim analysis of 20 participants from 12 LMIC's shows 39% of patients with fractures presents with a delay, mostly because of financial reasons. Participants reported POP material is available at 100% of the included healthcare facilities, traction systems at 80%, external fixators at 65% and orthopaedic implants at 55%. The case-vignettes show 45% of participants chose referral. Local conservative and operative management were both chosen by 27%. The main rationale for chosen type of management was 'expected best result'. Regarding referral, the second major reason was 'lack of qualified caregivers for other options'.

Discussion: Most trauma care providers reported resources for conservative fracture treatment are available. However, the majority chooses to refer the case-vignette patients for operative treatment. The feasibility and underlying reasons of this high referral rate, like lack of experience, remain unclear. More data is needed to explore the motivation of certain extremity fracture treatments in LMICs, correlated with the availability of treatment options and level of training of trauma care providers.