Surgical And Functional Recovery Following Staged Corrective Osteotomy Of Lower Limbs For Hypophosphatemic Rickets (HPR)

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INTRODUCTION:
Hereditary hypophosphatemic rickets (HPR) is an array of metabolic bone disease that commonly present during childhood with abnormal or delayed growth cartilage mineralization leading to bone deformities around the knee joint causing a deviation of mechanical axis. Deformities if left uncorrected may lead to pathological loading on the articular surface and growing physis resulting in worsening gait and subsequently function. In this study, our aim is to assess the physical and functional outcome following corrective osteotomy of lower limbs in HPR patients.

MATERIALS & METHODS:
We included all skeletally matured HPR patients that were treated with staged acute corrective osteotomy and internal fixation from year 2004 to 2014. All patients recruited were at least 12 months post-surgical intervention. We excluded patients with arthritic, unstable or ankylosed hip and knee joints and skeletally immature patients.

Patients were assessed in terms of functional outcome, physical outcome and radiological outcome. Mechanical axis deviation and knee alignment lines were measured according to the method described by Paley et al. The SF-36 Health Survey Questionnaire form was used to assess functional outcome.

Scores collected were then analysed using IBM SPSS Statistics 23 and Microsoft Excel. Paired sample t-test was used for data analysis. A p-value of <0.05 is considered to be statistically significant.

RESULTS:
Patients post corrective osteotomy scored higher SF-36 scores in all eight components but showed statistically significant improvement in physical role functioning (RP), vitality (VT), social role functioning (SF), emotional role functioning (RE), and mental health (MH) with a p-value of < 0.05. When comparing physical component score (PCS) and the mental component score (MCS), MCS had significant improvement with a p value of 0.008 (p <0.05).

DISCUSSION:
Our results were comparable to McKee et al that reported similar results in mental health and emotional improvement in patients with post-traumatic lower limb deformity that underwent corrective surgery. When compared to the normal Malaysian population based on the study published in 2003, postoperative patients could attain similar functional scores as normal individuals.

CONCLUSION:
This study not only reflects the improvement in physical and surgical outcome after corrective osteotomy but also significant functional recovery especially in mental health components. The general health perception and mental health status of patients with orthopaedic deformities should not be underestimated.

REFERENCES: