

IS CANAL-TO-DIAPHYSIS RATIO A VALID PARAMETER TO ASSESS BONE MINERAL DENSITY IN ELDERLY POPULATION WITH HIP FRACTURE?

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Introduction: Malaysia is projected to have the highest increase (3.55 fold) in number of osteoporotic hip fractures in Asia by 2050. DEXA scan as gold standard in diagnosing osteoporosis only available in tertiary hospitals but not in district hospitals and local government clinics which responsible in screening and treating osteoporosis. Canal-to-diaphysis Ratio (CDR) is a simple calculation based on plain pelvis x-ray which is widely accessible in majority of the primary health care settings.

Methodology: A prospective cross-sectional study Sample size 230 patients recruited after evaluating inclusion and exclusion criteria Sampling done in Hospital Raja Permaisuri Bainun Ipoh, Perak Study duration 1st March 2020 until 28 February 2021 CDR calculated based on pelvis x-ray taken in emergency department during admission (width of medullary canal over width of cortex at 5cm inferior to lesser trochanter) Samples with hip fracture of either intertrochanteric or neck of femur type were operated as per routine protocol Patient is given DEXA scan appointment within 4 weeks after discharged to evaluate the bone mineral density (BMD) Pearson Correlation test done to search for association between CDR and BMD Prevalence of osteoporosis in hip fracture determined A Receiver Operative Characteristic (ROC) curve derived from the available data to determine the cut-off value indicating osteoporosis

Discussion: Female 164, male 66 mean age 72 no statistical difference in male and female age 128 intertrochanteric fracture, 102 neck of femur fracture mean CDR 0.58 CDR and BMD has positive correlation ROC CDR cut-off value 0.57

Conclusion: CDR is a reliable assessment tool for osteoporosis screening. Due to its simplicity in calculation and availability of X-ray, CDR can be vastly used in screening of osteoporosis in the population. When treating the elderly population in primary healthcare centres, with the CDR value of 0.57, anti-osteoporotic medication should be started in order to reduce the risk of fragility hip fracture.