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A comparative study of the use of ultra-low dose CT scans with conventional CT scans for the evaluation of proximal tibia intra-articular fractures

HARSHITH BHASKAR SHETTY

TITLE: A comparative study of the use of ultra-low dose CT scans with conventional CT scans for the evaluation of proximal tibia intra-articular fractures

AUTHOR: Dr. Harshit Bhaskar Shetty. Post Graduate, Dept of Orthopaedics, KMC, Mangalore.,
Dr. Amarnath D. Savur. Prof. and Unit head, KMC, Mangalore.

ABSTRACT

AIM: To compare the efficacy of ultra-low dose CT scan imaging with that of a conventional CT scan.

OBJECTIVES: To study the images of tibial plateau fractures generated by ultra-low dose CT scans and to compare them with that generated by conventional CT scans.

METHODOLOGY: 23 radiographically confirmed cases of tibial plateau fracture were included in the study. Patient underwent a conventional CT of the knee joint of the affected side followed by an ultra-low dose CT scan of the same part. Images generated by both the radiological modalities were evaluated by 5 radiologists and reporting was done using the modified Schatzker's classification. The side annotations of the scans were removed for the purpose of blinding. Reported fractures were quantified then compared statistically.

RESULT: Images generated by Low dose CT scan are 93.94% sensitive with a Positive predictive value of 93.92% when compared to image generated by standard dose CT scan with an overall reduction in the effective dosage of radiation by 89.81%.

CONCLUSION: Low dose CT generates near equal to equal images as a conventional CT when used to evaluate tibial plateau fracture, thus establishing its non-inferiority with a reduction of Effective Radiation Dose by 89.81%.