CO24: Radiographic image quality criteria for osteoarthritis of the knee

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Introduction: The femorotibial joint is the most affected in osteoarthritis (OA) and the main symptom is pain. Weight-bearing plain radiographs of the knees are the most reliable diagnostic tool for evaluating and grading the severity of this disease. The joint space width (JSW) has been increasingly used to assess the severity of OA from radiographs.

Objectives: To present a reliable method for visual image quality assessment of weight-bearing knee radiographs and proposes guidelines for diagnostic measurements predictors of OA.

Materials and Methods: Through a retrospective study, 68 weigh-bearing knees radiographs performed in adult patients aged between 50 to 86 years with a diagnosis of gonarthrosis have been analysed and assessed. Visual analysis and diagnostic measurements predictors of OA were performed using ImageJ software.

Results and Discussion: This image data analysis demonstrate that most errors of image quality are radiographic contrast in 52.9% (n=18) in image A and 44.1% (n=15) in image B on left knee and non-superimposition of the posterior and anterior edges of the tibiae plateau were absent in 17.7% of image A and 14.7% of image B.

Conclusion: Regarding the fulfilment of the image quality criteria, the results are satisfactory and most of radiographs have acceptable quality. However the failure of image quality criteria complicates the assessment and measurement of the JSW. In this study a few predictive diagnostic measurements of knee OA from the weigh-bearing radiographs were performed. The role and usefulness in the diagnosis and treatment of this pathology will be emphasized.

References

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