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The Comparative Study of Reliability and Reproducibility of Distal Radius' Fracture Classification among: AO Frykman and Fernandez Classification Systems

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Abstract

Objective: To study the reliability and reproducibility of distal radius fracture classification in plain radiographs.

Material and Method: Ninety-eight displaced distal radius fractures radiographs were classified in four groups of observers. The first group consisted of one senior orthopedics staff and two hand-orthopedic surgeons (with experience ranging from ten to thirty years). The first group conducted and evaluated the research altogether. This first group was also regarded as standard adjustment. The three other groups comprised fourth year orthopedics residents, using AO, Frykman, and Fernandez classification systems with six weeks intervals. The results were processed with kappa statistics. The Research to be approached by Thammasat Ethic Committee.

Results: The highest kappa coefficient in interobserver agreement was determined in Fernandez classification (0.415), AO classification (0.342), and Frykman classification (0.280). When intraobserver were evaluated, Fernandez classification had a highest mean kappa value (0.343). Then Frykman classification (0.310) and AO classification (0.292) followed. Likewise, the classification, of which each of senior orthopedics residents evaluated most resemble to standard adjustment, was Fernandez classification with a mean of 62.34%.

Conclusion: Fernandez classification provided satisfactory outcome comparing to standard adjustment and gave a highest inter and intraobserver agreement. Nevertheless, none of the classification systems examined in the present study has achieved an excellent outcome.

Keywords: Intraarticular fracture, Distal radius, Classification, Reliability, Reproducibility

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