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Reliability of Tönnis classification in early hip arthritis: A useless reference for hip-preserving surgery

Marius Valera P S, Natalia Ibañez, Rogelio Sancho and Marc Tey
Hospital de Sant Pau, Spain

Background: The Tönnis classification is widely accepted for grading hip arthritis but its usefulness as a reference in conservative hip surgery is yet to be demonstrated.

Purpose: We aimed to evaluate reproducibility and validity of the Tönnis classification in early stages of hip osteoarthritis and thus determine whether it is a reliable reference for conservative hip surgery.

Methods: We prospectively examined 117 hip X-rays from two groups of patients below 55 years: A group of 31 candidates for hip conservative surgery and a control group of 30 asymptomatic subjects. Three orthopedic surgeons with different levels of experience each graded arthritis twice using the Tönnis classification. Intra- and inter-observer reproducibility was analyzed using Kappa index and graded following Landis and Koch classification. The scale was validated using pain as an external variable.

Results: Kappa values for interobserver reproducibility were slight or fair (range 0.173-0.397). Kappa values for intraobserver reproducibility were fair (range 0.364- 0.397). Confusion between grades 1 and 0 was the most frequent cause of intra- and interobserver disagreement (76.3% and 73.01% of the non-concordant observations respectively). The confidence interval analysis showed observer experience did not affect reproducibility. Although symptomatic hips showed significantly higher scores than asymptomatic (Mann-Whitney, $p < 0.001$) validity of the classification could not be demonstrated.

Conclusions: The Tönnis classification is a poor method to assess early stages of hip osteoarthritis. These findings suggest its routine use in therapeutic decision-making for conservative hip surgery should be reconsidered.

Biography

Marius Valera has completed his Doctor of Medicine from Universitat Autònoma de Barcelona in 1992. After that he completed his Residency & Fellowship from Hospital de Sant la santa Creu i Sant Pau in Barcelona. Currently he is working as Consultatn of the Hip Surgery at Hospital de Sant Pau & Professor at Universit at Autònoma de Barcelona.

mvalera@santpau.cat

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