

## **Osteoporotic Fracture Classification and Genant Semiquantitative Technique grading**

### **Thoracolumbar Osteoporotic Vertebral Fracture: a comparative Agreement Analysis.**

Juan P. Cabrera (1), Guisela Quinteros (2), Julio Urrutia (3), Charles A. Carazzo (4), Alfredo Guiroy (5), Bartolomé Marre (6), Ratko Yurac (7).

1. Juan P. Cabrera, M.D. Department of Neurosurgery, Hospital Clínico Regional de Concepción, Concepción, Chile. [jucabrera@udec.cl](mailto:jucabrera@udec.cl)
2. Guisela Quinteros, M.D. Orthopedics Department, Hospital Regional de Talca, Talca, Chile. Associate professor of Orthopedics surgery, School of Medicine, Universidad Católica del Maule, Talca, Chile. [draguiselaquinteros@gmail.com](mailto:draguiselaquinteros@gmail.com)
3. Julio Urrutia, M.D. Department of Orthopaedic Surgery, School of Medicine, Pontificia Universidad Católica de Chile. [jurrutia@med.puc.cl](mailto:jurrutia@med.puc.cl)
4. Charles A. Carazzo, M.D. Department of Neurosurgery, University of Passo Fundo, São Vicente de Paulo Hospital, Passo Fundo, Rio Grande do Sul, Brazil. [cacarazzo@hotmail.com](mailto:cacarazzo@hotmail.com)
5. Alfredo Guiroy, M.D. Spine Unit, Orthopedic Department, Hospital Español de Mendoza, Mendoza, Argentina. [alfreguiroy@gmail.com](mailto:alfreguiroy@gmail.com)
6. Bartolomé Marre, M.D. Department of Orthopedic and Traumatology, University del Desarrollo, Santiago, Chile; Spine Unit, Department of Traumatology, Clínica Alemana, Santiago, Chile. [bmarre@alemana.cl](mailto:bmarre@alemana.cl)
7. Ratko Yurac, M.D. Department of Orthopedic and Traumatology, University del Desarrollo, Santiago, Chile; Spine Unit, Department of Traumatology, Clínica Alemana, Santiago, Chile. [ryurac@gmail.com](mailto:ryurac@gmail.com)

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**Introduction:** Different classification systems have been developed to assess osteoporotic vertebral fracture morphology. A recent scheme emerged trying to simplify classifications and to be more reproducible. Our objective is to compare the inter and intra-observer agreement using the Osteoporotic Fracture Classification (OFC) [1] and the Genant Semiquantitative method (GM) [2].

**Materials & Methods:** Ninety-seven patients' images were assessed by six spine surgeons, three junior and three senior attendings, using the OFC and the GM. The survey was repeated four weeks later in a different random order. We calculated the inter and intra-observer agreement using Fleiss Kappa ( $K$ ) with a 95% confidence interval (CI).

**Results:** The overall interobserver agreement using the OFC was fair ( $K=0.29$ ; 0.25–0.33); the intra-observer agreement was also fair ( $K=0.28$ ; 0.27–0.29). The overall interobserver agreement using the GM was 0.44 for the numeric component and 0.34 for the descriptive component; the general intra-observer agreement was 0.41 and 0.34 for the numeric and descriptive components. A better interobserver agreement was observed in higher grades of injury with the OFC (OF-4=0.38 and OF-5=0.33) and the GM (Grade 3  $K=0.56$ ; 0.51–0.61).

There was significantly better interobserver agreement in OF-1 to OF-4 comparing the first and second rounds.

**Conclusions:** The OFC exhibited a lower interobserver agreement but similar to the descriptive component of the GM. The intraobserver agreement of the OFC was lower than the numeric and descriptive components of the GM.

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