



## O-TRA-18 - Relation of MRI morphometric parameters with injury severity in acute spinal cord injury patients

*D. de Matos<sup>1</sup>, R. Pereira<sup>1,2</sup>, S. Tavares<sup>1</sup>, M. Carvalho<sup>1</sup> and M. Barbosa<sup>1,2</sup>*

*<sup>1</sup>Serviço de Neurocirurgia, Centro Hospitalar e Universitário de Coimbra, EPE. <sup>2</sup>Faculdade de Medicina, Universidade de Coimbra.*

### Resumen

**Objectives:** Quantitative MRI measurements in acute spinal cord injury (ASCI) could be useful tools to describe severity of injury, establish different treatment modalities and predict prognosis. The value of specific measures is unclear, either with spinal canal/cord compression metrics or intramedullary MRI signal. Our aim was to investigate the relation of morphometric parameters - Maximum Canal Compromise, Maximum Spinal Cord Compression, respective diameters and Lesion Length - with injury severity on a group of ASCI patients with cord contusion/hemorrhage.

**Material and methods:** 34 patients with ASCI and MRI study sequences were included; morphometric parameters were measured in blind fashion on the original DICOM images, using OsiriX software. Patients data was collected from hospital files and the Asia Scale was used. The statistical analyse was performed with SPSS.

**Results:** Lesion Length (extent of intramedullary T2 hiperintensity) showed statistically significant differences ( $p = 0.035$ , Kruskal-Wallis) across ASIA groups and was able to distinguish complete from incomplete injury; MSCC and the respective diameter were different between complete and incomplete injuries (t-test;  $p = 0.05$ ,  $p = 0.016$ ). Logistic regression analysis showed LL related to injury severity across ASIA grades, but MSCC and diameter were only significant to distinguish grade D from other ASIA grades.

**Conclusions:** Intramedullary lesion length demonstrated a better association with injury severity and, while spinal cord compression parameters showed some association with ASIA grades, it was less evident. Combining this with the lack of MCC association to injury severity, we conclude intramedullary MRI parameters are stronger candidates as clinical tools.