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GEOGRAPHICAL VARIATIONS IN DEGENERATIVE CERVICAL MYELOPATHY PRESENTATION AND SURGICAL TREATMENT OUTCOMES: RESULTS OF A PROSPECTIVE INTERNATIONAL, MULTICENTER AOSPINE INTERNATIONAL STUDY (CSM-I)

Introduction/Aim
Significant global variation in the presentation, etiology and management of cervical spondylotic myelopathy (CSM) is expected but has not been studied to date. Here, we report results of a large prospective international multicenter study (AOSpine CSM-International).

Methods and Materials
Between 2007 and 2011, all adult patients with imaging confirmed CSM were enrolled at 16 international high volume centers. Detailed data on presentation, treatment and functional outcomes were collected prospectively. Participating surgeons were free to choose the type and extent of surgery. Those with inflammatory, infective, neoplastic etiology were excluded. Patients were followed up for up to 24 months.

Results
Participating centers were based in Asia (AP n=150), Europe (E n=126) Latin (LA n=80) and North America (NA n=123). The mean age of the cohort was 56.4 (range 22-87 yrs) years and the majority were males. Patients from AP and LA were significantly younger (53.9 and 54.2 respectively) than those from NA and E ($p<0.0003$). The presenting underlying CSM pathology varied between regions ($p<0.001$). Posterior ligamentum flavum hypertrophy was most frequently in LA and OPLL was prevalent in AP patients (35%) and E (32%). Despite etiological variations, there were no differences in baseline mJOA, Nurick and NDI scores ($p<0.1$). However, patients in AP scored the highest and those in LA scored the lowest on SF36PCS and LA patients had highest SF36 MCS scores $p<0.008$). Anterior surgical decompression was performed on the majority in Europe (71.43%), AP (61.07%) and NA (56%) but not in LA (33%). Circumferential decompression surgery was rarely performed in NA (4.88%) and E (3.17%).

At 24 months there was significant improvement in overall outcome measures ($P<0.001$) in all regions. AP patients demonstrated the greatest improvement in NDI and SF-36 PCS/MCS and E the least. Patients from Europe had lower SF-36 QOL scores and showed less functional improvement in mJOA. NDI score was highest in AP region.

Conclusions/Discussion:
There were significant regional variations in etiology of CSM but not at presenting functional status. Anterior cervical approach for CSM was the most common surgical approach worldwide. Surgical decompression achieved statistically significant improvements in mJOA, NDI, Nurick score and SF36v2 across centers. However, there were variations in the degree of functional improvements gained across the regions.