Adjacent disc injuries in Thoracolumbar fracture - Assessments and its significance. Development of the new DISC injury classification

Raman V Kalyan[1], A Hamilton[2], P Nolan[2], E Cooke[2], N Eames[2], M Crone[2] and **D Marsh[1]**
[1]Royal National Orthopaedic Hospital, UK
[2]Royal Victoria Hospital, UK

Objectives: To measure short-term outcome of stable Thoraco-lumbar fracture and to analyse aspects of injury severity for their ability to predict outcome. To develop a new disc injury severity grading system in thoraco-lumbar spine fractures.

Study design: Prospective observational.

Patient sample: 44 patients with stable fractures between T11 and L5 vertebra, with no neurological deficit and treated conservatively were selected.

Methods: All had X-rays, CT and MRI imaging. Bony injury severity was scored on a seven-point ordinal scale based on a) comminution, b) apposition and c) kyphosis. Disc injury severity was scored on a newly developed six-point ordinal scale. Outcome (5 domains of pain and function each) was assessed at 1 to 2 years from injury. The data (patient demographic, pre-injury health status, injury and outcome variables) was analyzed by non-parametric correlation (for predictors of outcome) and stepwise linear regression analyses (to compare predictive value). Results: According to AO classification, the fractures were A1, A2, A3 and B1. The Spear-man correlation coefficients between injury severity and outcome were consistently higher with disc injury severity than bony e.g. for pain intensity the respective correlation was: .63 ($p<.0001$) and .28 (not significant), and for SF36-PCS: .41 ($p<.01$) and .25 (not significant). The predictive value of pain was 29% for disc injury severity and it increased by further 9%, 9% and 6% by addition of each of the following 3 variables respectively: "patient's pre-injury mental status", "legal and Compensation issues pending" and "physical demand of job". The predictive value of function was 16% for disc injury severity and it increased to 31% by the addition of "physical demand of the job" variable. The predictive value further increased by 5% by addition of variable "Legal and Compensation issues pending". All other variables were not significant.

Conclusion: A new grading system of disc injury severity was developed, and it showed good predictive value to pain and functional outcome. Disc injury severity has a better predictive value of short-term outcome compared to the bony injury severity. In the spectrum of injuries studied, the AO classification and the degree of kyphosis provided no prediction of outcome.

Speaker Biography

Raman V Kalyan is a Consultant Spine Surgeon from UK working in North East England. His busy practice covers a wide spectrum of both Adult and Paediatric Spine Pathologies. He is an Honorary Consultant in James Cook University Hospital, UK. From 1992 to 2000, he has gained extensive experience from working in numerous renowned spinal centres in UK, Europe and India. He started his training in Spinal Surgery in the famous institution Christian Medical College Hospital in India in 1992. In Europe, he got specialized training in spinal surgery by attaining the prestigious fellowship in France (under Prof J Dubousset, 1998) and Germany (Prof. J. Harms, 1997). In UK, he undertook further spinal training and fellowships under eminent surgeons in Edinburgh (Mr M Mc Master), Belfast and London (Stanmore Hospital). He obtained his dual accreditation (clinical and academic) in Trauma and Orthopaedics, by undertaking the Northern Ireland and Stanmore rotations. In 1996, he was elected for the TNOA travelling fellowship to visit few distinguished spinal surgeons. He was awarded the MD degree in Belfast for his research work in Spinal fractures and has won prizes for his research work. As a Clinical lecturer in UCL University London (2008 - 2009), he gained experience in conducting courses and teaching programmes. His research interests focus on Spinal Pain, Less invasive management of spinal pathologies, spinal fractures and spinal deformity.

e: vkalyanv@hotmail.com

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