

NEWS

Thoracic Spine – A Neglected Portion of the Spine Symposium**Zagreb, October 6, 2009**

Thoracic spine is the largest part of the spine with anatomical and functional specificities that manifest on presentation and tailor therapeutic approach to the diseases and conditions involved. In the field of vertebrology, the professional and research efforts are mostly focused on the cervical and lumbar portions of the spine. Therefore, the Croatian Society of Vertebrology in collaboration with University Department of Rheumatology, Physical Medicine and Rehabilitation, and University Department of Neurosurgery, Sestre milosrdnice University Hospital, organized a symposium entitled Thoracic Spine – A Neglected Portion of the Spine, held on October 6, 2009 in Sestre milosrdnice University Hospital Multimedia Hall. The aim of the Symposium was to present current concepts on the causes, diagnosis, differential diagnosis, management and rehabilitation of patients with various diseases and conditions involving the region of thoracic spine, with due consideration of the evidence-based medicine data. With this Symposium, the Croatian Society of Vertebrology celebrated the World Day of the Spine, within the many activities related to the 2000-2010 Decade of Bones and Joints, proclaimed by the World Health Organization.

Twenty two experts in the field of vertebrology took active part in the Symposium that was led by Professor Simeon Grazio, MD, PhD, head of University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre milosrdnice University Hospital, and Asst. Professor Damir Kovač, MD, PhD, neurosurgeon from University Department of Neurosurgery, Sestre milosrdnice University Hospital. As previously, this year's Symposium gathered a great audience of more than 150 physicians of various specialties (e.g., psychiatrists, neurosurgeons, surgeons,

psychiatrists, orthopedists, family medicine physicians, and others) from all over Croatia.

The welcome address given by Professor Krešimir Rotim, MD, PhD, director of Sestre milosrdnice University Hospital, and foreword by the Symposium moderator, were followed by the first lecture on the epidemiology of thoracic spine diseases and conditions, held by Head Doctor Zoja Grjidić, MD, MS, from Drago Čop Polyclinic for Rheumatic Diseases in Zagreb. In her lecture, Dr. Grjidić emphasized that pain in thoracic spine might be caused by changes in the spine and spine related structures, but also by alterations involving the gastrointestinal, cardiopulmonary and renal systems. Thus, pain and dysfunction of



thoracic spine may develop in primary and secondary osteoporosis, hyperkyphosis, ankylosing spondylitis, degenerative spine disease and Scheuermann's disease; however, it may also be underlain by inappropriate posture due to prolonged static load, e.g., sedentary lifestyle. It is estimated that 3.5%-35.3% of individuals will suffer from thoracic pain some time in lifetime, and according to most studies these discomforts are mainly transient and of short duration.

The second lecture presented by Matej Mustapić, MD (with Head Doctor Igor Borić, MD, MS, and Professor Miljenko Marotti, MD, PhD, as coauthors) from Clinical Department of Diagnostic and Interventional Radiology, Sestre milosrdnice University Hospital, dealt with radiologic diagnosis of thoracic spine diseases and conditions and described a number of radiologic imaging methods, each of them characterized by some advantages as well as shortcomings. The methods may occasionally be mutually exclusive; however, more frequently they supplement each other to reach definitive diagnosis. Appropriate choice of a particular radiologic imaging method to provide the most comprehensive insight into the problem requires familiarity with their possibilities, distinct clinical request, and above all tight collaboration between clinicians and radiologists as leaders of the diagnostic team.

This lecture was followed by another one on thoracic spine degenerative disease and painful thoracic syndrome, presented by Tomislav Nemčić, MD, from University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre milosrdnice University Hospital. Dr. Nemčić emphasized that pain in thoracic spine could originate from spinal muscle, intervertebral disks, facet joints, change in the region of spinal canal or anomalies of the spinal column. About 90% of disk hernias in the region of thoracic spine occur due to degenerative changes of intervertebral disk, yet symptomatic hernias are very rare, accounting for less than 1% of all symptomatic disk hernias. The thoracic syndrome symptomatology is very diverse, ranging from local pain and atypical pain distribution to myelopathy. The goal of treatment is to reduce pain, thus also improving spinal function. Analgesics are the most common modality of conservative therapy, while medical gymnastics is almost regular part of functional treatment, aiming to reduce pain, develop



muscular trunk and spine support, and reduction of stress upon intervertebral disk and other static spine stabilizers.

Frane Grubišić, MD, MS, from University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre milosrdnice University Hospital, spoke about conservative treatment of osteoporosis in the region of thoracic spine, with special reference to osteoanabolics. Prevention of osteoporosis and osteoporotic fractures is one of the major goals of treatment and includes modification of particular habits, calcium and vitamin D supplementation, and use of appropriate antiresorptive or osteoanabolic agents. Two osteoanabolic agents are available to our patients: teriparatide and strontium ranelate. These agents can significantly reduce the risk of vertebral osteoporotic fractures and improve the patient quality of life.

A lecture on thoracic spine in spondyloarthritides was held by Professor Simeon Grazio, MD, PhD, from University Department of Rheumatology, Physical Medicine and Rehabilitation, Sestre milosrdnice University Hospital. Professor Grazio spoke on spon-

dylitis as one of the main characteristics of spondyloarthritis to be most pronounced just in the region of thoracic spine. Structural changes, ossification of ligaments and articular capsules, and paravertebral muscle tension contribute to reduced spinal mobility and restricted chest expansion, thus abdominal breathing prevailing over thoracic breathing. Besides nonsteroidal antirheumatics and physical therapy, biologicals and tumor necrosis factor alpha (TNF- α) blockers in particular, proved to be most efficacious in the management of spondyloarthritis.

The first part of the Symposium ended with a lecture on infections in the region of thoracic spine, presented by Professor Miroslav Lisić, MD, PhD (with Klaudija Višković, MD, PhD as a coauthor) from Dr. Fran Mihaljević University Hospital for Infectious Diseases in Zagreb. Professor Lisić said that vertebral osteomyelitis (spondylodiscitis) may develop in three ways, i.e. by hematogenous spread from a distant focus, by direct inoculation due to trauma or surgical procedure, and by dissemination from the surrounding inflamed structures. The bacterium *Staphylococcus aureus* is the most common cause of vertebral osteomyelitis, however, infection with *Mycobacterium tuberculosis* that mostly involves lumbar and lower thoracic vertebrae is by no means uncommon. Magnetic resonance is the most sensitive diagnostic method, while treatment should be tailored according to antimicrobial sensitivity of the causative agent identified. Treatment usually takes 6-12 weeks and operative procedure is

needed in only some patients. A combination of four antitubercotics (isoniazid, rifampin, pyrazinamide and ethambutol) administered for 6-12 months are used in the management of spinal tuberculosis.

The second part of the Symposium was dedicated to surgical topics, i.e. modalities of operative treatment for thoracic spine diseases and conditions. Professor Vladimir Kovač, MD, PhD (with Mislav Čimić, MD, MS as a coauthor) from University Department of Orthopedics, Dubrava University Hospital, spoke about reconstructive procedures in thoracic spine surgery. This lecture showed anterior instrumentation to produce better results in scoliosis in terms of deformity derotation, shorter fusion and lesser neurologic risks. In congenital deformities of the spine, instrumentation with "sliding rods" is employed to avoid any compromise to the child's growth. Short and strongly distorted kyphotic deformities are corrected by anterior mobilization, whereas long and flexible deformities are managed by posterior techniques. Posterior instrumentation and anterior fusion offer optimal treatment for spondylitis.

Then, a lecture on surgical approach in case of intervertebral disk hernia in the region of thoracic spine was presented by Zlatko Kolić, MD, MS (with Professor Darko Ledić, MD, PhD as a coauthor) from University Department of Neurosurgery, Rijeka University Hospital Center in Rijeka. Thoracic spine has specific anatomical characteristics (rigidity, chest, vascularization, kyphosis, etc.), which greatly dictate



the choice of surgical techniques in the management of thoracic disk herniation. Intervertebral disk hernia in the thoracic region frequently occurs in the form of disk-spondylophyte complex, which poses a high operative risk, thus the modalities of optimal surgical treatment of the thoracic spine degenerative disease have not yet been defined.

Darko Perović, MD, PhD (with Head Doctor Zvonimir Kejl, MD, Dražen Kvesić, MD, and Nenad Somun, MD as coauthors) from University Hospital for Traumatology in Zagreb spoke about current therapeutic approach to thoracic spine injuries. According to this report, Th11, Th12 and L1 vertebral fractures account for more than 50% of all spinal fractures. In the group of patients free from neurologic deficit, avulsion and stable fractures are managed conservatively by bed rest and analgesics, and occasionally by external stabilization with orthosis. Unstable fractures require internal fixation and intervertebral fusion, while dislocations also demand controlled open repositioning. Current approach with the use of titanium implants and autologous bone enable excellent restabilization of the spinal column and fast resuming all daily activities. Decompression may also be occasionally required in patients with neurologic deficit. Dr. Perović (with Professor Gojko Buljat, MD, PhD as a coauthor) held another lecture on the possible operative treatments of osteoporotic fractures in the region of thoracic spine. Osteoporotic fractures most commonly occur in the area of thoracolumbar spine and can be classified into four groups: (A) single-level acute fracture; (B) multiple fractures with body center derangement; (C) chronic persistent instability – pseudoarthrosis; and (D) fractures with spinal stenosis and neurologic manifestations. Group A and B fractures are generally treated with analgesics and external immobilization with the use of orthosis. In patients susceptible to major collapse of vertebral body, vertebroplasty with high viscosity osseous cement has proved useful, while the latest technique of intervertebral stent implantation allows for nearly complete restitution of the vertebral body height. In group C and D fractures, open repositioning and internal fixation are needed, while group D fractures also require spinal canal decompression.

The experiences acquired by neurosurgeons of the University Department of Neurosurgery, Sestre milosrdnice University Hospital, in the current surgi-

cal treatment of thoracic spine tumors were presented by Karlo Houra, MD, PhD (with Professor Krešimir Rotim, MD, PhD, Asst. Professor Damir Kovač, MD, PhD, and Robert Saftić, MD, MS as coauthors). They reported on the results of operative treatment of 67 patients with primary tumors of thoracic spine in the past 15 years. There were four patients with extradural tumors, 48 patients with intradural extramedullary tumors and 15 patients with intramedullary tumors. Intramedullary tumors were mostly of glial origin, whereas meningiomas predominated among intradural extramedullary tumors. It was emphasized that postoperative morbidity in patients with thoracic spine tumors, and those with intramedullary tumors in particular, could be considerably reduced with the use of intraoperative monitoring of somatosensory and motor evoked potentials.

The last lecture, held by Tatjana Nikolić, MD, from University Hospital for Traumatology in Zagreb, discussed patient rehabilitation after surgical procedures in the region of thoracic spine. Dr. Nikolić emphasized the role of postoperative rehabilitation individualization. Every rehabilitation program begins with patient verticalization on the very first postoperative day and walking as tolerated. Thoracolumbar spine movements are not allowed in early postoperative rehabilitation, but upper and lower extremity range of motion exercises can be performed. The active rehabilitation program can be initiated between postoperative week 4 and 6, and includes back muscle exercises and cardiovascular fitness program. Active range of motion exercises, extension in particular, can be included towards the end of week 6; active trunk muscle and paraspinal muscle exercises between week 8 and 12; and gradual resumption of all daily activities between week 12 and 16; contact sports are not allowed until at least 6 months of operative procedure.

Fruitful and vivid discussion took place after the lectures (moderators: Professor Simeon Grazio, MD, PhD, and Asst. Professor Damir Kovač, MD, PhD), followed by informal gathering and snack.

In conclusion, the participants of the Thoracic Spine – A Neglected Portion of the Spine Symposium have certainly gained new concepts or clarified some dilemmas, to the benefit of our patients with thoracic spine discomforts.

Tomislav Nemčić