

with computerized morphometric examination on the dorsal and lumbar spine radiographic images.

Results The total number of fractures (>20%) was 242. Only 35 (14.46%) vertebral bodies presented both anterior height and middle height (wedge plus biconcave deformities). 18 (7.43%) vertebral bodies presented "crush fracture". Only 24 (18.47%) fractured women presented both deformities. Most common vertebral body that presented simultaneously wedge and biconcave fracture was D6 (17.64%). L1 was most frequently affected by crush fractures (22.2%).

Conclusions The percentage of women with wedge plus biconcave deformities is low, and this double deformity is more frequently placed around the apex of the dorsal kyphotic curve. The most frequently crushed vertebral body is L1.

VERTEBRAL COMPRESSION FRACTURES IN PATIENTS WITH POOR BONE QUALITY: WHEN AND WHICH OSTEOPLASTY? THE NEEDING FOR A GLOBAL APPROACH

R. Iundusi, G. Cannata, M. Celi, I. Cerocchi, D. Lecce, M.G. Minicelli, U. Tarantino

Dipartimento di Chirurgia Ortopedica, Università di Roma "Tor Vergata", Rome, Italy

Introduction Osteoporosis is estimated to afflict 200 million women worldwide. About 1.7 million vertebral compression fractures (VCFs) occur every year in Europe and in the US. Vertebral fractures are the most common type of fragility fractures due to alterations in bone quality, quantity and microarchitecture. Usually they occur with low energy trauma and result in pain about the fracture site, loss of vertebral body height, and, in many cases, kyphotic deformity due to progressive vertebral collapses. Some patients gain benefits using conservative treatments (drugs, bracing, bed rest and rehabilitation) but many other patients do not.

The aim of our study is to establish when there are the conditions to perform a vertebral osteoplasty and which technique, based on personal experiences and on omogeneous datas from the international literature, is suitable for each patient.

Materials and Methods Vertebroplasty and balloon kyphoplasty are two minimally invasive surgery approaches developed for the management of symptomatic VCFs.

Vesselplasty is a new minimally invasive surgical technique which provides pain relief, stabilization of the vertebral body, and it has the ability to provide some correction of deformity with partial restoration of vertebral body height.

During vesselplasty procedure an artificial "vessel" system, the Vessel-X®, is introduced into the vertebral body to achieve augmentation after which low-viscosity bone cement mixed with calcium phosphate is injected into the vertebral body: the Vessel-X® are expanded to their predetermined configuration and a few bone void filler material penetrates through the "vessels" interdigitating the vertebral body, reducing one of the most common adverse effects of other minimally invasive techniques such as cement leakage.

Discussion Treatment of osteoporosis has made enormous advances in the past years, resulting in a wide range of options. We remind the importance of a global approach to the osteoporotic patients: the best treatment remains early diagnosis evaluating bone remodelling markers, lumbar and femoral Dual-energy X-ray absorptiometry (DEXA), thoracic and lumbar x-rays imaging and risks fracture assessment to ensure an individual and best appropriated therapy as specific as possible.

Vesselplasty is a safe and effective minimally invasive procedure for relief of pain associated with VCFs, and improves mobility decreasing the potential risks associated with immobility.

Future trials evidence should investigate if the association of vertebral osteoplasties with specific drugs acting on bone quality, for

example teriparatide (an anabolic drug), and rehabilitation could improve clinical outcomes reducing comorbidities and restoring a good and reasonable quality of life.

THE KIPHOPLASTY IN THE TREATMENT OF THE VERTEBRAL FRACTURES: EFFECTS ON THE ADJACENT SEGMENT. REVIEW OF OUR EXPERIENCE AFTER THREE YEARS AND STATE OF THE ART

¹A. Fazio, ¹G. Berardi, ¹A. Bottiglia, ¹E. Bertini, ²G. Giorgianni

¹Divisione di Chirurgia Vertebrale, I.C.O.T., Latina, Italy; ²Policlinico Universitario, Messina, Italy

Introduction The authors introduce the results of their experience in the treatment of the vertebral fractures by Kiphoplasty after three years since the introduction of this technique.

The introduction of the Kiphoplasty, a percutaneous technique that allows the immediate remission of the painful symptomatology and the rapid return of the patient to its normal activities without aid of orthopaedic garrisons, has opened new perspectives in the treatment of this pathology.

Materials and Methods The study we have carried out involved a group of 20 patients, selected among those submitted to Kiphoplasty, affected from vertebral fractures from osteoporosis.

It dealt with fractures in compression type 1A (16 cases) and type 1B (4 cases) according to the classification of Denis that we have adopted.

Levels interested by the fracture: D9:1 - D12:2 - L1:2 - L2:7 - L3:6 - L4:1 - L5:1.

We have excluded from this study the lesions where an open surgical intervention was required as the back wall of the vertebral burden was interested.

We have performed the follow-up by evaluating the possible effects that the burden treated with Kiphoplasty could have generated on the adjacent segment.

We have used the card VAS, and for the diagnostic, the radiography in the standard and dynamic projections as well as the RMN examination.

Results In two cases, after one year, a fracture of the superior adjacent segment has been recorded, in one case following a new trauma, in another one due to a new spontaneous fracture.

In 4 cases the patients reported sporadic pain of probable origin from the disk without however noticing alterations to the examination RMN.

Discussion The Kiphoplasty in terms of social costs, apart from a rather large initial expense for the instruments, allows, on the long run, for a considerable saving if compared to the expense one would sustain for the conservative treatment.

The advantage provided by the express recovery and the instant remission of the painful symptomatology is undeniable. However, one must not underestimate the possible effects in the long run that the segment treated with cement PMMA - polimetilmetaacrilato - can also happen on the adjacent levels considering also the result obtained, even after one year, comparing the group treated with Kiphoplasty to other homogeneous group conservatively treated that result to practically overlap as it concerns the painful symptomatology. We consider essential that the medical treatment of the osteoporosis to be associated to the surgical one, besides the peridodic control of the adjacent structures disco-somatic.

MINIMALLY INVASIVE PERCUTANEOUS OSTEOSYNTHESIS IN THE TREATMENT OF ADULT AND OLD PATIENT SPINE FRACTURES

A. Gasbarrini, M. Cappuccio, G. Barbanti Bròdano, S. Bandiera, L. Boriani, F. De Iure, M. Palmisani, S. Boriani

U.O. di Ortopedia e Traumatologia, Chirurgia del Rachide, Ospedale Maggiore, Bologna, Italy