

## A retrospective Comparison between Vertebro-and Kyphoplasty

W. Lack\*, J.Krugluger\*, M.Nicolalis\*\*, R.Sabitzer\*\*\*

\*Community of free spine surgeons, Vienna, Austria

\*\*Orthopaedic department, Evangelischers Krankenhaus, Vienna, Austria

\*\*\*Orthopaedic centre, Otto Wagner Spital, Vienna, Austria

### Introduction

This retrospective study investigates the results of 197 vertebro (VP)-and kyphoplasties (KP) between 2001 and 2013 the first author participating.

### Patients and method

138 operations with altogether 197 vertebral body cement-injections in 124 patients were evaluated, 165 VP-and 32 KP. Prophylactic VP in fusions and procedures in simultaneous decompression or fusion were excluded.

VP was done in multiple recent fractures and very low vertebral bodies, KP was preferred in higher danger of cement drainage or the possibility of an erection of the vertebral body.

Female patients were dominant with 75%, in only 6% a real trauma was existent.

The investigation comprised the volume of bone-cement, an eventual drainage, the subjective result within the first week, complications and fractures of adjacent vertebral bodies in the following 6 weeks and revisions. All radiologic capable outflows were included.

### Results

Cement volume in KP was 7,3ml (4,5-10), in VP 5ml (2,5-8), both numbers were evaluated out of 40% of the injections.

Cement drainage was seen in 25% of the KP and 44% of VP. Direction of cement drainage was: 29% dorsal/epidural, 24% cranial disc, 21% caudal disc, 17% paravertebral lateral and both 4,5% anterior and into vessels.

Below the posterior drainages were 2 cement strings (within the first cases), caused by the failure of reinsertion of the mandrin after cement injection; these strings had to be removed by a mini-open access.

Alltogether 60% reported an excellent, 27% a good result, 9% had no improvement, 3% had problems with complications and 1 patient died because of pneumonia.

KP showed 65% excellent, 15% good results and 20% non-improvement, the corresponding numbers in VP were 55%-31%-8% and 6% complications (including the exitus).

Complications in KP were 1 pneumonia and 1 temporary radicular pain, in VP 1 letal pneumonia, 1 cement embolus into the lung (reversible), 1 intradural bleeding after 10 days (resolving), 1 radicular pain, 2 intercostal pains (all resolving by conservative treatment), 1 severely increased foot drop and 1 stop-liquor with increasing neurologic deficit.

Because of neurologic symptoms in 2 cases after VP an open decompression was performed, once successfully.

Adjacent vertebral body fractures were seen in 4% after KP and 9% after VP, in 6 cases treated by a second cement injection. A drainage of cement into the adjacent disc increased the danger of adjacent vertebral body fracture from 5,5 to 8,8%.

The percentage of revisions in KP was 0, in VP 8%.

### **Conclusion**

There were significant differences in volume of cement (7,3ml in KP, 5,0ml in VP), frequency of outflow of cement (KP 25%, VP 44%), frequency of severe complications resp. revisions (0/8%) and also a difference in the rate of adjacent vertebral body fracture (4% vs. 9%).

The clinical results after both procedures were satisfying with 60% excellent and 27% good results, similar in both techniques besides the complications.

These results favour KP because of lower drainage rates, dangerous complications and adjacent vertebral body fractures. Indications of VP seem to be mainly three or more recent fractures and prophylactic cement injection.