Angular profile of the cage has no influence on segmental alignment after stand-alone cage-assisted ACDF

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Clinical significance of sagittal alignment in ACDF

- Fusion of cervical segment in kyphotic malalignment has been proven to produce an acceleration of degenerative changes at adjacent levels and fusion in lordosis may have protective effect.

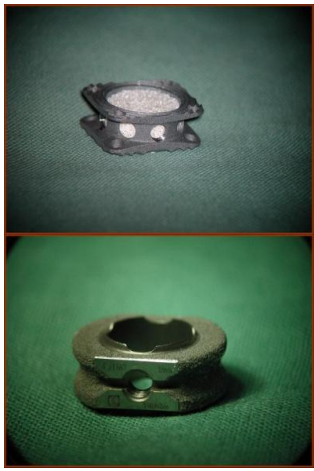
- ***Does lordotic profile (angulation) of the cage in standalone cage assisted ACDF facilitate fusion in lordotic position?***

Study design

- A prospective semi-randomized study addressing radiological results in ACDF in 6 week and 5 year follow-up.

- Two designs of interbody cage used as standalone fusion device:

1. Parallel profile (0º) … **Group P**
2. Angular profile (5º lordosis) … **Group A**



Material and methods

- 94 consecutive patients
  - 56 single-level ACDF
  - 38 double-level ACDF at adjacent segments

  …equally distributed into A and P subgroups.

- Lateral radiographs – preoperative
  - 6 weeks postoperatively
  - 5 years after the surgery

Material and methods

- Radiological measurements: Cobb angle of fused segment (single- or adjacent double-level).
- Calculations: The difference between follow-up and preoperative Cobb angle is calculated as an ability of cage to lordotize (provide additional lordotic angle to the segment).
- Statistical evaluation: t-test (α=0,05).

Results

Average additional lordotic angle provided by the implant to preoperative segmental alignment

…**in 6 weeks**:

Group P -2,32º

Group A -2,02º (p=0,87 … insignif.diff.)

…**in 5 years**:

Group P -1,51º

Group A -1,36º (p=0,93 … insignif.diff.)

Results

Average lordotisation of the segment after single-level ACDFs

…**in 6 weeks**:

Group P -1,54 º

Group A -1,18 º (p=0,84 … insignif.diff.)

…**in 5 years**:

Group P -1,25 º

Group A -0,71 º (p=0,74 … insignif.diff.)

Results

Average lordotisation of the segment after double-level procedures

…**in 6 weeks**:

Group P -1,89º

Group A -3,26º (p=0,70 … insignif.diff.)

…**in 5 years**:

Group P -1,89 º

Group A -2,32 º (p=0,91 … insignif.diff.)

Conclusion

- The 5º angulation of the **Cage A** has not been reflected by significant improvement in lordotic alignment after standalone cage assisted ACDF.

- The ability to lordotise segment by stand-alone cage assisted ACDF is under the angular resolution of conventional radiography irrespective of implant sagittal profile.

Disclosure

None of the authors of this study had identified any conflicts of interest.