**Abstract**

**Introduction**:

Cervical spine pain is common clinical problem with significant social importance, affecting the quality of patients life and producing extensive treatment costs. The common cause of symptomatic pain disease is cervical discopathy, as a result of degenerative changes in the intervertebral disc. Anterior cervical discectomy with fusion (ACDF) is a "gold standard" of treatment of cervical symptomatic degenerative disc disease. Indications of surgical treatment are still unclear.

**Purpose of the study**:

1. To evaluate the biomechanical effects of surgical treatment of patients with cervical disc herniation after ACDF, including degeneration of adjacent segments.
2. To evaluate the effectiveness of pain relief and improvement of functional status of patients before and after surgical treatment
3. To evaluate quality of patients life based of the NDI questionnaire.

**Material and methodology of the study**:

The study was performed in 30 patients with cervical discopathy after ACDF using interbody/vertebral PEEK cage. The patients have been subjected of complete clinical and radiological examination before and 1 year after of surgical treatment. Pain evaluation was performed based on the NRS scale and the NDI questionnaire. Biomechanics analysis was performed based on functional X-Ray using Cobb angles measuring method.

**Results**:

After surgical treatment we confirmed significant relief in pain, measured by NRS score and reduction of functional disability based on the NDI questionnaire. Stable intervertebral spondylosis was obtained in all patients undergoing surgery. There was a significant increase in segmental mobility of segment above the operating segment and not significant decreased in segmental mobility of the segment below the operating segment. There was no significant change in the intervertebral height above or below the operated segment. There was no degeneration of adjacent segments.

**Conclusions**:

1. Anterior cervical discectomy with fusion (ACDF) during an one year observation period does not cause degenerative changes in adjacent levels.
2. ACDF surgery is an effective method to reduce the severity of pain in patients.
3. Spondylosis of one or two levels results reduction of mobility of cervical spine despite the hypermobility of adjacent levels
4. Restoring of the intervertebral disc space height of the operative level has secondary importance.
5. The surgical treatment of ACDF improves the quality of patients life.