# Clinical Follow-Up of a New Implant System for Posterior Cervical Spine Instrumentation

Balkan Cakir(1)(B), Marcus Richter(1)(O)

*Institution(s)*
*1) Dept. of Orthopaedics; University of Ulm, Ulm*

Purpose of Study: The use of rod-screw systems improved posterior instrumentation of the cervical spine significantly due to optimal screw position adapted to the individual anatomic situation. A new modular rod-screw implant system was developed with improved biomechanical properties and cannulated cervical screws. The aim of this prospective clinical study was the clinical evaluation the new implant system.

Methods Used: 38 consecutive patients with post. occipito-cervical or cervical instrumentation with the new implant system operated by one surgeon were evaluated prospectively after a minimum one year follow-up. Indications were instabilities due to rheumathoid arthritis in 10 patients, cervical spinal stenosis in 5 patients, implant failure with non-union in 4 patients, dens non-union in 4 patients, dens # in 3 patients, congenital malformations in 3 patients, cervical spine fractures with ancylosing spondylitis in 3 patients, rupture of the alar ligaments in 2 patients, locked fracture dislocations in 2 patients and iatrogenic instabilities in 2 patients. In 10 patients the occiput was included in the instrumentation, in 16 patients 88 pedicle screws and in 26 patients 52 transarticular screws C1/2 were used. The mean follow-up interval was 15.8 months (12-28), mean age at operation was 53.7 years (19-92). Evaluation included radiological, neurological and clinical follow-up.

Summary of Findings: No implant related complications were observed. One instrumentation-related complication was observed due to a broken k-wire tip during transarticular C1/2 instrumentation with cannulated screws and a 1.5 mm k-wire with threaded tip. After changing to non-threaded k-wires no more k-wire breakages occurred. No neurological or vascular complications were found related to pedicle screws as well as transarticular C1/2 screws. The malplacement rate of the pedicle screws was 11% (10 screws) and in all cases below 2 mm displacement without any neurological or vascular complications, no malplacement of transarticular C1/2 screws was found. Instrumentation with the new system was possible in all cases as planned preoperatively. During the follow-up period no non-union or implant failure was observed.

Relationship Between Findings and Existing Knowledge: This is the first report on the clinical evaluation of neon - a new modular rod-screw implant system for posterior instrumentation of the cervical spine.

Overall Significance of Findings: This study showed that posterior instrumentation of the cervical spine using the new neon occipito-cervical system is versatile and has proven to be both safe and efficient.

Keywords:

Address: RKU - Orthopädische Klinik mit
Querschnittgelähmtenzentrum der Universität Ulm
Oberer Eselsberg 45, D-89081 Ulm Germany

Fax: +49-731-1103

E-Mail: B.Cakir@web.de