Total ankle replacement in rheumatoid arthritis

Introduction:
Rheumatoid arthritis (RA) is a systemic disease that involves multiple joints throughout the body. About 90% of the people with rheumatoid arthritis eventually develop symptoms related to the foot or ankle. Ankle involvement can be treated surgically with arthrodesis, arthroplasty or supramalleolar osteotomy. During the last decade the interest in ankle replacement has increased rapidly not only in degenerative or posttraumatic but also in inflammatory arthritis. Although initial attempts at total ankle replacement largely failed, interest in the procedure has recently been renewed. The main stimuli may derive from the partial dissatisfaction with the ankle arthrodesis and the success of total hip and knee arthroplasty. High non-union rates in arthrodesis, compensatory overload of the neighbouring joints and gait changes have encouraged attempts to find a more physiological solution for end stage arthritis of the ankle joint. Earlier studies show good results in ankle arthroplasty in patients with rheumatoid arthritis. The purpose of this study is to present our experience with total ankle replacement in patients with rheumatoid arthritis and to compare the outcome with other patients who underwent prosthetic treatment.

Patients / Methods:
In this prospective study the three component ankle design HINTEGRA was used for 122 consecutive arthroplasties (116 patients) out of which five were performed on patients with rheumatoid arthritis. The ankle replacements were analysed with respect to their history, physical pedobarographic and radiographic findings (Image intensification to obtain straight anterioposterior and lateral views). The AOFAS-Hindfoot-Score was used for prospective documentation of ankle joint function. The follow-up controls were made after six weeks, six months, one year and two years. The last examination was done after 18.9 months (12-36 months). Additional procedures, e.g. calcaneal lengthening osteotomy, triple arthrodesis, subtalar arthrodesis, cheilectomy, were done where needed.

Results:
Within the first 50 replacements eight ankles (6.6%) had to be revised. All of the patients who had secondary surgery were treated for posttraumatic arthritis. Four were revised because of loosening, one because of bad
positioning of the talar component, two because of instability on the lateral or medial side and one for open
arthrolysis because of arthrofibrosis. 81.1 % had good or excellent results, 15.6% were satisfactory and 3.3% were poor. All of the patients suffering from systemic arthritis were in the first group. 68.1 % were without pain and 30.3% had little pain (VAS 2.6); 1.6% had strong pain. The motion in the joint was clinically 39° (15-55°) and 37° (7-62°) measured under the image intensifier (‘true ankle motion’). The AOFAS-Hindfoot Score improved from 40 preoperatively to 85 at follow up, and from 23 to 83 in patients with rheumatoid arthritis. Radiologically one talar component migrated posteriorly due to bad positioning but then remained in a stable position. In the last four months three additional arthroplasties were performed in patients with systemic arthritis and so far the results are good or excellent.

**Conclusion:**

Our results with total ankle arthroplasty are encouraging, and particularly good in patients with systemic arthritis. Previous good results described by other authors, especially in patients with systemic arthritis, were shown to be reproducible. We earlier implanted the STAR prosthesis in seven patients suffering from systemic arthritis, which gave us equally good results with an AOFAS Score increasing from 25 to 87 without postoperative complications. Indications for ankle replacements is a controversial and much discussed topic. However rheumatoid arthritis has been shown to be a good indication when respecting general requirements, e. g. good bone stock, no immunosupression, good hindfoot alignment, preserved ankle joint motion and sufficient ankle stability. All of the patients with systemic arthritis who underwent an ankle replacement had additional surgical procedures such as arthrodesis or correction of the hindfoot alignment. Optimal treatment is most important in these patients as there is a high predisposition for joint destruction of the neighbouring joints therefore multiple approaches may be considered to achieve the best outcome. Although the first results are very promising, a longer follow-up is mandatory in order to assess the advantages of prosthetic treatment in ankle arthritis.