

Treatment of osteonecrosis of the femoral head: Comparison of extracorporeal shockwaves versus shockwaves plus Alendronate

Author:

Ching-Jen Wang (1), Feng-Sheng Wang (2), Kuender D. Yang (2), Chung-Cheng Huang (3), Mel ShiuannSheng Lee (4), Yi-Sheng Chan (4), Jun-Wen Wang (1), Jih-Yang Ko (1)

Institution:

- 1) The Departments of Orthopedic Surgery
- 2) Medical Research
- 3) Diagnostic Radiology, Chang Gung Memorial Hospital-Kaohsiung Medical Center,
- 4) The Department of Orthopedic Surgery of Chang Gung Memorial Hospital-Lin-Kou Medical Center, Chang Gung University School of Medicine, Taiwan

Device and producing company:

OssaTron Orthotripter from HMT, Kreuzlingen, Switzerland

Introduction:

This prospective study compared the results of shockwaves plus alendronate (Group A) with that of shockwaves without alendronate (Group B) in the treatment of early ONFH.

Methods:

Group A consisted of 25 patients with 30 hips with an average age of 38.6 ± 12.6 years, and group B consisted of 20 patients with 27 hips with an average age of 34.9 ± 10.8 years. Patients in group A received 6000 shockwave impulses at 28 KV (= 0.62 mJ/mm^2) to the affected hip in a single session, but did not receive alendronate. Patients in group B received shockwaves plus alendronate (70 mg per week for one year). The evaluations included clinical assessments, radiographs and MR images of the affected hip.

Results:

The overall clinical outcomes were improved in 83%, unchanged in 7% and worsened in 10% for group A; and improved in 74%, unchanged in 15% and worsened in 11% for group B. Total hip replacement was performed in 10% of group A and 11% of group B ($P = 0.891$). On MR images, regression of the lesion was noted in 47% of group A versus 55.6% of group B ($P = 0.791$).

Discussion:

Shockwaves may promote blood supply to the femoral head with neovascularization. Alendronate may improve the bone quality by inhibiting osteoclast activity. The results of the current study failed to show the synergistic effects of alendronate and shockwaves in ONFH.

Conclusion:

Shockwaves are effective with or without the concomitant use of alendronate. The use of alendronate over shockwaves in early ONFH appears superfluous in the short term.