

Extracorporeal shock waves in Kienböck disease: Clinical experience and scientific speculations

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Device and producing company:

Modulith SLK, Storz Medical

Introduction:

A gold standard therapy for avascular osteonecrosis of hamate has not yet been described in the Literature; in the latest stages, surgery is the only treatment. On the basis of positive results in the treatment of osteonecrosis of other bones, we decided to treat Kienbock disease with Extracorporeal Shock Waves (ESW).

Methods:

From January 2003 to March 2008, 11 patients, suffering from Kienbock disease, were submitted to ESW treatment (Modulith SLK, Storz). The protocol consisted of repeated single sessions (4,000 – 5,000 shots at 0.35 – 0.45 mJ/mm²) under local anesthesia.

Results:

Almost all patients showed a rapid improvement of pain, even after the first session, with the possibility of returning to daily and working activities. NMR controls did not correlate with the improvements in clinical symptoms: we observed only bone marrow edema resolution (especially in early stages), without a significant improvement of osteonecrosis.

Discussion:

These clinical results seem to confirm the possibility of successfully treating Kienbock disease, although without significant imaging improvement of the osteonecrotic site. These positive results are confirmed by recent data, which describes the possibility to counteract osteonecrosis degeneration, as well as to induce Vascular Endothelial Growth Factor production in subchondral bone, through the use of ESW. Moreover, the possibility of obtaining bone marrow edema resolution, already confirmed by previous data, opens interesting therapeutical perspectives.

Conclusion:

It is recognized in the Literature that earlier diagnosis and treatment of Kienbock disease can avoid more invasive and destructive surgery. ESW treatment could be considered a valid therapeutical option, especially in the early stages, for slowing or reducing the progression of osteonecrosis, thus avoiding or delaying surgery and consequent sequelae.