

Extracorporeal Shockwaves, Cell and Pain

Author:

Andreas Lang¹, Helmut Neuland²

Institutions:

1) Praxis für Chirurgie und Unfallchirurgie, Hagenbacher Str.2, 74177 Bad Friedrichshall, Germany

2) ZES, Kronberg, Germany

Device and producing company:

Piezuson 100plus (Wolf, Germany)

Introduction:

For a useful, promising and convincing ESW-treatment it is essential to determine optimal energy density, frequency and number of impulses. We used the analgesic effect of ESW to define the best parameters for a maximal analgesia.

Methods:

Seventy-one patients with painful points at the musculoskeletal system, aged from 16 to 78. Special group of 21 patients with gonarthrosis. 1,000 impulses/session, depth depending on indication, 4 Hz, Level 1-6(0.04- 0.22 mJ/mm²). VAS before, immediately after, 24 hours after treatment.

Results:

VAS before treatment 3.40- 5.39(depending on the group). VAS directly after treatment 2.64- 3.24. Twenty-four hours after treatment 0-4.46.

Discussion: ESW has an analgesic effect, but only in low energy state corresponding to the irritation of the myelinated A- delta fibres. That leads to the inhibition of the pain transmission via non-myelinated C-fibres. The analgesia is not persistent as long as painful stimuli can not be stopped.

Conclusion:

ESW of low energy levels between 0.04- 0.22mJ/mm² cause an analgesic effect.