ABSTRACT

Double Blind Study of Pulsed Magnetic Field Therapy of Osteoarthritis of the Knee

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It is now well established in modern biology that magnetic fields, even weak ones, have an influence on human physiology. This applies to static fields as well and especially for time-varying fields. Only recently have the relevant mechanisms of action been able to be assessed from a practical perspective. There is increasing use of pulsating low frequency magnetic fields as a physical therapy modality free of side effects.

Osteoarthritis of the knee is a degenerative disease of the knee joints, progressively impairing mobility. On November 2nd, 2000 a double blind study with 71 elderly people with osteoarthritis of the knee was conducted in the Department of Physical Medicine of the Marburg/Drau Hospital. Measurements included subjective measures of pain and general health parameters and parameters specific to the illness and laboratory tests. In addition a knee arthritis society score questionnaire was applied to determine minor alterations in status and physical performance changes of the knee joint.

35 active treatment and 36 placebo patients, female and male, were exposed to 16 minute therapy sessions on the "Salut 1", that is the "QRS" mattress pad device with 3 integrated double coils that treats the whole body (manufacturer: Magnovit, Liechtenstein) from Monday thru Friday. The magnetic field generator supplies a patented complex signal with a "saw tooth" type wave and selectable field strengths in 10 step increments. Strengths were increased incrementally from steps 2 up to 8 during the first 4 weeks of therapy and then remained unchanged for another two weeks for a total of 6 weeks. The final examination was conducted at the end of the 8th week.

Four weeks after the start of the study a complete interim examination took place and after 8 weeks the final medical evaluation was completed. The results of the 6-weeks treatment were summarized as follows:

1. subjective assessments of "pain and condition of health"

The visual analogue pain scale of the active treatment patients showed a significantly

lower pain level (P=0.011) versus sham, sensory adjusted pain-rating scale (P = 0.00018), effective verbal rating scale (P =0.002) and global subjective scoring of general (P =0.023).

2. laboratory examinations

P-fibrinogen showed a trend toward reduction compared to placebo (P =0.76). An increase of the red blood cell count (P =0.017) was seen.

3. knee society score

After 6 weeks magnetic field therapy walking distance was significantly increased (P=0.037) and also objective left knee evaluation showed improvement (P=0.54).

The results above demonstrate statistically valid improvement of QRS treatment over sham in daily treatment of osteoarthritis of the knee for 6 weeks. The full results of the study will be available after the trial is published.