

# Monopolar capacitive resistive radio-frequency 448 kHz in the post surgical treatment of femoral fracture

## Objective

To evaluate the effects of **INDIBA®** Monopolar Capacitive Resistive Radio-Frequency device at 448 kHz in the treatment of pain and oedema in patients with a femoral fracture who have undergone surgery with osteosynthesis, endoprosthesis or arthroprosthesis

## Material and Methods

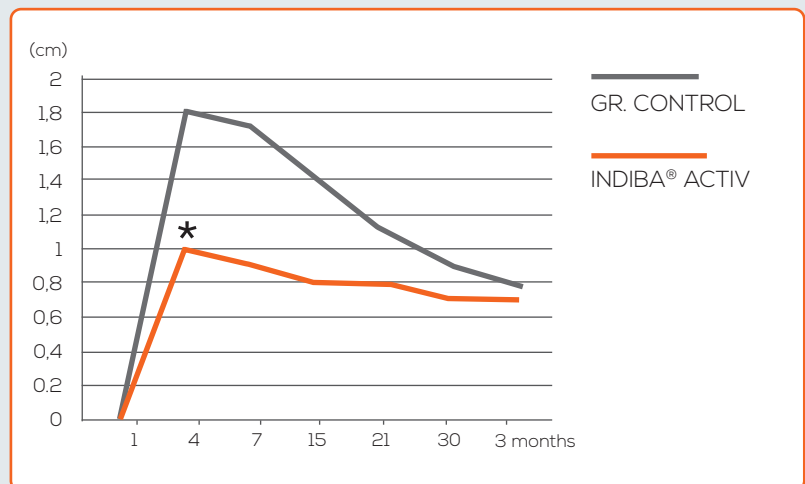
30 patients with an average age of 75 years old divided into two groups, the first group treated with **INDIBA®** together with the normal protocol of rehabilitation. The second group (control) was treated with the standard protocol for rehabilitation. Pain and muscle oedematous infiltration were evaluated.

## Results

Pain showed a significant increase in both groups during the first day after surgery. The treated group with **INDIBA®** showed a statistically significant reduction of pain during the 4<sup>th</sup> ( $p=0.0045$ ) and the 7<sup>th</sup> ( $p=0.033$ ) day. In the control group there was no significant pain reduction (table 1).

Oedema increase in the perimeter of thigh of both groups until the 4<sup>th</sup> day reached values of 1 cm in the **INDIBA®** group and 1.8 cm in the control group. The 0.8 cm difference between both groups showed a statically significant difference ( $p=0.009$ ). Later these values have been reduced in a non statistically significant way in both groups until they reach a similar value in the thirtieth day (graphic 1).

**Graphic 1.** Oedema evolution showed a better result in the group treated with **INDIBA®**. At the fourth day oedema was significantly ( $p=0.009$ ) lower compared to the control.



## Conclusions

- Monopolar Capacitive Resistive Radio-Frequency device at 448 kHz **significantly reduces pain and oedema** during the first days after surgery.
- Results can be explained by means of a non-thermal application since the first day of surgery, this has a **positive effect on lymph and arterial microcirculation**, which apparently are the basis of these good results.

# INDIBA<sup>®</sup>

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