Effects of pulsed Electromagnetic Field Therapy on Post-surgical Pain: a Randomized Placebo Controlled Double Blind Study in Breast Reconstruction Patients

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The authors have no commercial associations that might pose or create a conflict of interest with the information provided.
Post-operative Complications

» Acutely: pain
   ~ Increases length of stay

» Short term: edema
   ~ Prolongs recovery

» Long term
   ~ Scarring
Inflammatory Pathway
Pulsed Electromagnetic Field Therapy (PEMF)

» Increases Nitric Oxide in tissues
» Reduces inflammation
» Reduces pain
» Increases wound healing
» No known adverse effects
Potential Clinical Applications

» Non-invasive modality for analgesia
» Minimize post-operative edema
» Enhance wound healing
» Easily integrated into wound care
Purpose

This study was undertaken to determine if PEMF could provide pain control after breast reconstruction.
Patient Selection

» 14 patients undergoing bilateral mastectomies and immediate reconstruction with tissue expanders
Treatment and Data Collection

» Randomly assigned: bilateral PEMF or bilateral sham device
» Pain data recorded twice daily to POD 7
VAS Score
First Night

P=0.55

Sham
PEMF
VAS Score
POD1-POD3

P<0.0001

Sham

PEMF
VAS Score
POD4-POD6

P<0.001

Sham

PEMF
VAS Score
POD7

P = 0.46
Average amount of Narcotic USED: POD 1-3

IV Dilaudid (mg)
P<0.0001

Oxydocone (mg)
P<0.0001
Average amount of Narcotic USED: POD 1-3

Valium (mg)
P = 0.68

IV NSAIDS (mg)
P = 0.79
Average amount of Narcotic USED: POD 4-6

PO NSAIDS (mg)
P = 0.23

Oxycodone (mg)
P < 0.0001
Average amount of Narcotic USED: POD 4-6

Valium (mg)

P=0.68
Conclusions

»Pulsed electromagnetic field therapy is a non-invasive modality for pain control after breast reconstruction surgery
Thank You