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A randomized clinical investigation into placing pain spot externally to crossing area of the two currents of interferential therapy on pain

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Statement of the Problem: Interferential therapy (IFT) has been applied in a quadripolar way so that the two currents intersect in the painful area. Clinically, no clear reduction effect of pain has been confirmed with this application method of IFT. Experimentally, the highest voltage of IFT is being induced outside the intersection area of the two used currents. Thus, it is probably true that placing the painful area outside the intersection spot of the two currents would reveal a significant pain reduction which was investigated in this study.

Methodology & Theoretical Orientation: A double-blind placebo-controlled clinical investigation on 168 subjects with sub-acute low back pain subjects was carried out. Participants were randomly assigned to: (1) External IFT (painful spot was at 2 cm outside of the outer borders of the electrodes), (2) Placebo external IFT, (3) Traditional IFT (painful spot was at the crossing area of the two currents), and (4) Placebo traditional IFT. Groups 1 and 3 received 20 min of IFT at 100 Hz and comfortable stimulation intensity. Groups 2 and 4 received sham IFT for 20 min. Before and immediately after IFT session, pain severity, pressure threshold (PPT) and distribution were assessed using visual analogue scale (VAS), algometer and distance from pain source, respectively. Distance from the tip of middle finger to the ground during forward trunk flexion determined range of motion (ROM).

Findings: VAS and ROM improved with all groups, $P < 0.001$ and $P = 0.04$ respectively. No statistical differences appeared between groups, for VAS $P = 0.15-0.95$ and for ROM $P = 0.10-0.83$. True IFTs improved VAS and ROM to same extent. There was a trend of better VAS reduction with true IFTs compared to placebos. Oppositely, PPT and pain distribution did not significantly change with any of the groups, $P = 0.11$ and $P = 0.48$ respectively. Significant statistical difference between groups was in favor of placebo groups; for PPT ($P = 0.01$) and for pain distribution ($P = 0.04$). True IFTs changed PPT and pain distribution closely.

Conclusion & Significance: This study failed to show neither real pain reduction effect of IFT nor difference between traditional and external applications. None of the pain outcome measures assessed here, nor the ROM were affected by IFT. That is because, both true and placebo applications reduced pain and improved the ROM to same extent. However, there was a trend of superiority of true applications to both placebos for reducing pain severity.

Biography

Abulkhair M Beatti is the Director of Armed Forces Centre for Health Rehabilitation and Consultant Physiotherapy, Taif, Saudi Arabia. He is also a Collaborate Lecturer at Dammam University, Saudi Arabia. He has completed his BSc and MSc at King Saud University, Saudi Arabia and a PhD in Physiotherapy at University of Queensland, Australia. His research focuses on the study of various aspects of interferential therapy in the management of pain. His current investigations also relate to elucidating the effect of interferential therapy on pain while using different arrangement of electrodes in relation to the pain spot.

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