Alternation of Topical Heat & Cold As Therapy For Chronic Low Back Pain: A Randomized, Double-Blind, Controlled Clinical Trial

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ABSTRACT

- **Purpose:** To evaluate the efficacy and safety of contrast therapy -- alternating topical heat and cold -- in providing relief from chronic low back pain (CLBP).
- **Methods:** The contrast therapy consisted of alternating exposure to heat (45°C) and cold (15°C) probes (5 cycles of 15 min each) that were applied to low back. The outcome measures were 100-mm VAS, Oswestry Disability Index, Roland-Morris disability questionnaire, modified Schober test, and finger-to-floor distance.
- **Results:** The treatment group had significant improvements in pain intensity, range of motion, and functional status at 2 and 4 weeks relative to baseline. (p < 0.05)
- **Conclusions:** Contrast therapy appears to be an effective treatment for CLBP.

INTRODUCTION

- Approximately 70-85% of all people reported LBP at some time in their lives. [1]
- LBP often shows only minor improvement following treatment with conventional therapies. [2]
- As an alternative to conventional treatments, superficial heat or cold treatment is a common therapy for pain. [3]
- The purpose of this study was to evaluate the efficacy of contrast therapy in LBP.

MATERIALS AND METHODS

- **Participants**
  - A total of 30 patients with chronic LBP
  - Randomly assigned to a contrast therapy group (n = 15) or a sham group (n = 15)
- **Interventions**
  - Contrast therapy
    - Alternating exposure to hot (45°C) and cold (15°C) probes (5 cycles of 15 min each)
    - Patients were received the 10 treatments for 4 weeks
- **Outcome measurement**
  - Pain intensity (VAS score)
    - Measured at baseline and after every treatment
  - Dysfunction (ODI & RMDQ score)
    - Measured at baseline and after 2 and 4 weeks
  - Lumbar spine ROM (mSchober test & FTF distance)
    - Measured at baseline and after 2 and 4 weeks
- The protocol was registered in the Clinical Research Information Service of South Korea (Protocol Number: KCT0001399).

RESULTS

- **Pain intensity**
  - VAS score was declined over time in the treatment & control groups.
  - Pain was significantly reduced in treatment group after 6th treatment. (p < 0.05)
- **Disability**
  - ODI score was decreased in the treatment & control groups.
    - Comparison of the 2 groups indicated a significant difference at 4 weeks (p < 0.05)
    - but not at 2 weeks (p > 0.05).
  - RMDQ score was declined in treatment group, but increased in control group.
    - There were significant differences at 2 and 4 weeks. (p < 0.05)
- **ROM of lumbar spine**
  - mSchober test was increased in treatment group, but decreased in control group.
  - FTF distance was decreased in treatment group, but increased in control group.
  - ROM was significantly increased in the treatment group at 2 & 4 weeks. (p < 0.05)

DISCUSSION

- After 10 treatments, the treatment group had significantly lower pain intensity, better ODI, RMDQ, FTF distance, and mSchober score. (p < 0.05)
- Functional disability is an important outcome measure for testing the efficacy of therapies for chronic LBP. Patients in the treatment group had significantly improved disability.
- Contrast therapy appears to provide physiotherapeutic benefits, such as TENS
- Heat is well known to reduce muscle stiffness, so this may explain the apparently superior efficacy of contrast therapy on spinal function.
- Limitation
  - Clearly, in order to document any such long-term effects, a more prolonged period of contrast therapy with follow-up after the end of treatment is required.
  - Use of a larger sample size would also allow better investigation of additional effects.

CONCLUSIONS

- Contrast therapy is an effective treatment for patients with LBP.
- The results provide evidence that this therapy reduces pain and disability, and increases ROM of the lumbar spine.

REFERENCES


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