

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



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ABSTRACT

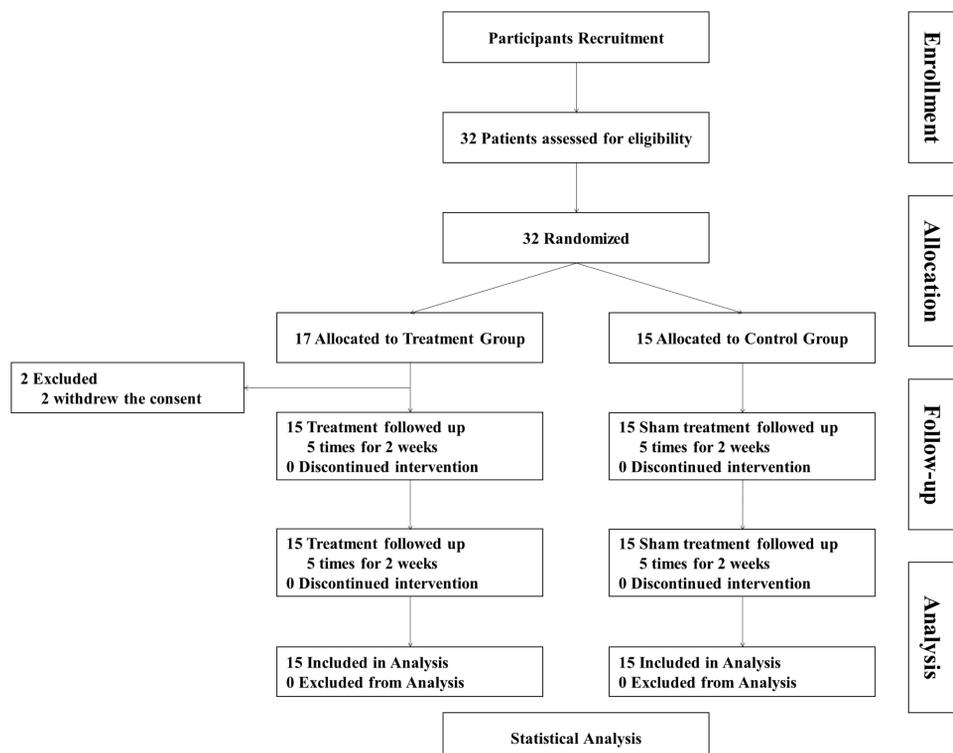
- **Purpose:** To evaluate the efficacy and safety of contrast therapy -- alternating topical heat and cold – in providing relief from chronic low back pain (CLBP).
- **Methods:** The contrast therapy consisted of alternating exposure to heat (45°C) and cold (15°C) probes (5 cycles of 15 min each) that 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.

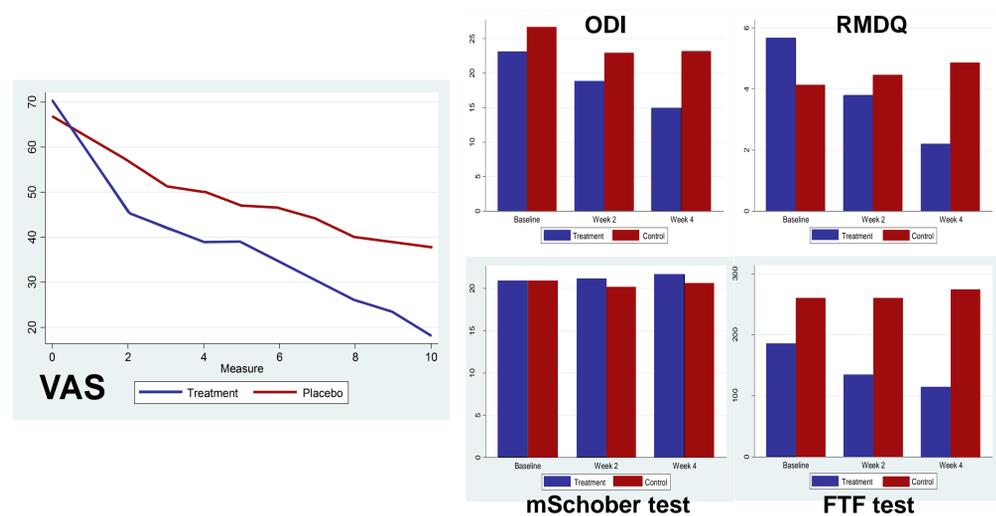
MATERIALS AND METHODS

- **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. ($p < 0.05$)



- **Adverse effects**
 - All of these events were mild in severity and considered unrelated to treatment.

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

- [1] Fritzell P et al. *Spine*. 2001;26(23):2521-32.
- [2] Hsieh LL-C et al. *Preventive medicine*. 2004;39(1):168-76.
- [3] Yokoyama M et al. *Anesthesia & Analgesia*. 2004;98(6):1552-6

ACKNOWLEDGEMENT

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