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A comparative study of the efficacy and safety of thiocolchicoside and chlorzoxazone in patients with acute musculoskeletal pain

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ABSTRACT

Background: Thiocolchicoside and chlorzoxazone are commonly used muscle relaxants for the management of acute musculoskeletal pain. However, there is limited evidence comparing their efficacy and safety. **Aims and Objectives:** The aim of the study was to compare the efficacy and safety of thiocolchicoside and chlorzoxazone in patients with acute musculoskeletal pain. **Materials and Methods:** This was a randomized, open-label, parallel-group study conducted in a tertiary care hospital. A total of 50 patients with acute musculoskeletal pain were randomized to receive either thiocolchicoside (8 mg) or chlorzoxazone (500 mg) thrice daily for 7 days. The primary outcome measure was the change in pain intensity from baseline to Day 7, assessed using a visual analog scale (VAS). The secondary outcome measures were the percentage reduction in pain intensity and the incidence of adverse events. **Results:** The baseline characteristics of the patients were similar in both groups. The mean baseline pain intensity was 7.2 ± 1.3 in the thiocolchicoside group and 7.1 ± 1.2 in the chlorzoxazone group. After 7 days of treatment, both drugs significantly reduced pain intensity from baseline. The mean pain intensity at Day 7 was 2.9 ± 1.1 in the thiocolchicoside group and 3.1 ± 1.2 in the chlorzoxazone group. The percentage reduction in pain intensity was 59.7% ± 12.3% in the thiocolchicoside group and 56.3% ± 11.5% in the chlorzoxazone group. However, there was no statistically significant difference between the groups in terms of pain intensity reduction (P = 0.453). **Conclusion:** The results of this study suggest that thiocolchicoside and chlorzoxazone are equally effective and safe in the management of acute musculoskeletal pain. The choice of drug may depend on the patient's individual characteristics and risk factors.

Keywords: Thiocolchicoside; Chlorzoxazone; Acute musculoskeletal pain; Efficacy; Safety; Visual analog scale; Adverse events

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INTRODUCTION

Muscle relaxants are commonly prescribed for the management of musculoskeletal pain. Several muscle relaxants are available in the market, but their comparative efficacy and safety are not well established.[1,2] Thiocolchicoside and chlorzoxazone are two commonly prescribed muscle relaxants, but their comparative efficacy and safety have not been fully established. Thiocolchicoside is a semi-synthetic derivative of colchicoside, a natural product found in the autumn crocus plant.[3,4] Thiocolchicoside is reported to have muscle relaxant, anti-inflammatory, and analgesic effects. Chlorzoxazone is a centrally acting muscle relaxant that acts on the spinal cord to reduce muscle spasms.[5,6] Chlorzoxazone is reported to have a higher risk of adverse events, including hepatotoxicity, compared to thiocolchicoside.[7]

Aims and objectives

The objective of this study was to compare the efficacy and safety of thiocolchicoside and chlorzoxazone in patients with acute musculoskeletal pain.

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MATERIALS AND METHODS

This was a randomized, open-label, parallel-group study. The study recruited 50 patients with acute musculoskeletal pain who were admitted to the government medical college and hospital in Suryapet, Telangana. Patients aged between 18 and 65 years, with a visual analog scale (VAS) score of at least 4 out of 10, were eligible for inclusion.[8] Patients with a history of allergy to thiocolchicoside or chlorzoxazone, renal or hepatic impairment, neurological disorders, or who were pregnant or breastfeeding were excluded from the study.[9]

Interventions

Eligible patients were randomly assigned to receive either thiocolchicoside (8 mg) or Chlorzoxazone (500 mg) orally, thrice daily for 7 days. The patients were instructed to take the medication with meals.

Outcome measures

The primary outcome measure was the change in pain intensity from baseline to Day 7, assessed using a VAS. The secondary outcome measures were the percentage reduction in pain intensity and the incidence of adverse events.

Data analysis

The data were analyzed using the independent samples t-test for the primary outcome and the Chi-square test for the secondary outcomes. $P<0.05$ was considered statistically significant.

Ethical considerations

The study protocol was approved by the Institutional Ethics Committee, Government Medical College, Suryapet, Telangana. Written informed consent was obtained from all patients before enrollment.

RESULTS

A total of 50 patients were randomized to receive either thiocolchicoside (n=25) or chlorzoxazone (n=25) for 7 days. The baseline characteristics of the patients were similar in both groups. The mean baseline pain intensity was 7.2±1.3 in the thiocolchicoside group and 7.1±1.2 in the chlorzoxazone group.

After 7 days of treatment, both drugs significantly reduced pain intensity from baseline. The mean pain intensity at Day 7 was 2.9±1.1 in the thiocolchicoside group and 3.1±1.2 in the chlorzoxazone group. The percentage reduction in pain intensity was 59.7%±12.3% in the thiocolchicoside group and 56.3%±11.5% in the chlorzoxazone group. However, there was no statistically significant difference between the groups in terms of pain intensity reduction (P=0.453).

Table 1: Comparison of efficacy of thiocolchicoside and chlorzoxazone in the management of acute musculoskeletal pain

Parameters	Thiocolchicoside	Chlorzoxazone
Baseline pain intensity	7.2±1.3	7.1±1.2
Pain intensity at Day 7	2.9±1.1	3.1±1.2
Percentage reduction in pain	59.7±12.3	56.3±11.5
Adverse events	5	4

Values are presented as mean±standard deviation. Adverse events were reported by a total of 9 patients (5 in the thiocolchicoside group and 4 in the chlorzoxazone group)

In terms of safety, both drugs were well tolerated, with no serious adverse events reported in either group. The incidence of adverse events was similar in both groups, with 5 events reported in the thiocolchicoside group and 4 events reported in the chlorzoxazone group (Table 1).

Overall, the results of this study suggest that both thiocolchicoside and chlorzoxazone are effective in reducing pain intensity in patients with acute musculoskeletal pain, with no significant difference between the two drugs. Furthermore, both drugs were well tolerated, with a low incidence of adverse events.

DISCUSSION

The present study aimed to compare the efficacy and safety of thiocolchicoside and chlorzoxazone in patients with acute musculoskeletal pain. The results of this study showed no significant difference in the efficacy of thiocolchicoside and chlorzoxazone in reducing pain intensity. Both drugs were found to be safe, and the incidence of adverse events was similar for both drugs.

Thiocolchicoside is a semi-synthetic derivative of colchicine, which has been used as a muscle relaxant for the treatment of acute musculoskeletal pain. It has been shown to have anti-inflammatory and analgesic properties, which contribute to its efficacy in reducing pain intensity. Chlorzoxazone is a centrally acting muscle relaxant that works by inhibiting the transmission of pain signals from the spinal cord to the brain.

The findings of this study are consistent with previous studies that have compared the efficacy of thiocolchicoside and chlorzoxazone in the management of acute musculoskeletal pain. Kumar et al.,[10] conducted a study in 2014 comparing the efficacy of thiocolchicoside and chlorzoxazone in patients with acute low back pain and found no significant difference in the efficacy of the two

drugs in reducing pain intensity.[10-12] Similarly, Abril et al.,[11] conducted a randomized, double-blind, multicentric study in 2022 and found no significant difference in the efficacy of thiocolchicoside and chlorzoxazone in the treatment of acute low back pain.[13]

Limitations of the study

One of the limitations of this study is the relatively small sample size. A larger sample size would be needed to draw more definitive conclusions regarding the safety profile of these drugs. In addition, the study only evaluated the short-term efficacy of these drugs in the management of acute musculoskeletal pain, and further studies are needed to evaluate their long-term efficacy and safety.

CONCLUSION

The results of this study suggest that thiocolchicoside and chlorzoxazone are equally effective and safe in the management of acute musculoskeletal pain. Therefore, both drugs can be considered potential options for the management of acute musculoskeletal pain The choice of drug may depend on the patient's individual characteristics and risk factors. Further studies with larger sample sizes and longer follow-up periods are needed to evaluate the long-term efficacy and safety of these drugs. In the meantime, clinicians can consider using either drug as first-line therapy for the management of acute musculoskeletal pain.

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Authors Contribution:
RKT: Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript. Statistical analysis and interpretation, revision of manuscript; **RKGK:** Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript, revision of manuscript; **KD:** Review of literature and preparing first draft of manuscript. Statistical analysis and interpretation; **RK:** Concept and design of the study, results interpretation, review of literature and preparing first draft of manuscript. Statistical analysis and interpretation, revision of manuscript; **SBS:** Review of literature, Revision of manuscript.

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