

*Originalni članci/
Original articles*

TREATMENT OF GONARTHROSIS
WITH BALNEO AND HORIZONTAL[®]
THERAPY (HT)

LEČENJE GONARTROZE
BALNEO I HORIZONTALNOM[®]
TERAPIJOM (HT)

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Key words

sulphur baths, mud packs,
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Ključne reči

sumporne kupke, peloid,
Horizontalna terapija, osteoartroza.

Abstract

Objective: To evaluate Horizontal[®] Therapy's (HT) pain relieving effects as well as HT's effects on range of motion in the knee when used in conjunction with balneological treatment in patients with Osteoarthritis of the compared to balneological treatment on its own. **Methods:** The effects of balneotherapy were documented in 36 patients with gonarthrosis, who were divided into two groups. The first group was only treated with mudpacks on the knee as well as baths in sulfuric mineral water (14.5 mg/l H₂S, pH 6.6), for 20 minutes per day, 6 consecutive days each week, for 3 weeks. The second group was treated with HT (delivered by a PRO ElecDT[®] 2000) together with balneotherapy. Electrodes were attached to the knees and a HT treatment of 30 minutes was administered. In both groups the pain levels (VAS scale) as well as the range of motion in the knees were documented. Measurements were done 3 times during the study period: Before the first treatment, on the 5th day and at the end of the treatment. The statistical analysis included Student's t test. **Results:** In both groups of patients a significant relieve of the pain (p=0.001) and increase in mobility in the knees (p=0.001) was observed at the end of the third week. However, patients who were treated with balneo and HT experienced significant pain relieve and increase in range of motion in the knees (p=0.001) after only five days. **Conclusion:** Among patients with gonarthrosis the desired pain relief is achieved after five days. Therefore, the temporary effects of balenelological reaction is being alleviated and the length of the treatment can be shortened.

INTRODUCTION

Degenerative osteoarthritis (OA) has been known to be a common disease of in the elderly for ages. In fact, it is as old as mankind. OA, the most common form of arthritis, is seen not only in the human populations but almost in all vertebrates and even in dinosaurs. In spite of this, the aetiology and exact mechanism triggering the initiation and development of OA are still not fully understood. As a matter of fact, OA aetiology has multiple causes. Some of these fac-

tors are aging, gender, local biomechanical influences as well as causes of degenerative osteoarthritis such as genetic anomalies, injures, focal lesions and metabolic disorders.

According to WHO report on global burden of disease, OA of the knee is likely to be one of the most prevalent global causes of disability in our society; fourth most important in women and eighth most important in men. There is no known curative therapy for OA; a variety of pharmacologic and non-pharmacologic modalities are recommended with the intent to

reduce pain, maintain and improve joint mobility and limit functional impairment. Spa therapy was recently included among the non-pharmacologic interventions selected for assessment by the EULAR Task Force aimed to reflect an evidence-based approach to key clinical questions concerning the treatment of knee OA

HT appliance uses middle frequency currents from 4.357 Hz to 12.346 Hz and functions on the principles of Horizontal Stimulation (Frequency-Frequency Modulation). One of the main indications for HT is the presence of pain (acute or chronic). HT modalities have been used in our hospital since 1997.

OBJECTIVE: To evaluate Horizontal[®] Therapy's (HT) pain relieving effects as well as HT's effects on range of motion in the knee when used in conjunction with balneological treatment in patients with Osteoarthritis of the compared to balneological treatment on its own.

METHOD

This study was executed at the Specialized Hospital for Rehabilitation Banja Koviljaca, Serbia. The effects of balneotherapy were documented in 36 patients with gonarthrosis, who were divided into two groups. The first group was only treated with mud-packs on the knee as well as baths in sulfuric mineral water (14.5 mg/l H₂S, pH 6.6).

The protocol of balneotherapeutic treatment is as follows. All OA patients received mud packs and sulfur baths for 20 minutes a day, 6 consecutive days per week, for 3 weeks. Specifically, each patient received a mud pack followed by a sulfur bath on the same day. The application of a hot native mineral mud pack with a temperature of 42 °C lasted for 20 minutes. Thereafter the patients went into individual bath-like pools containing native thermo mineral sulfurous water, the temperature of which was adjusted individually according to patient's preferences (32-34 °C).

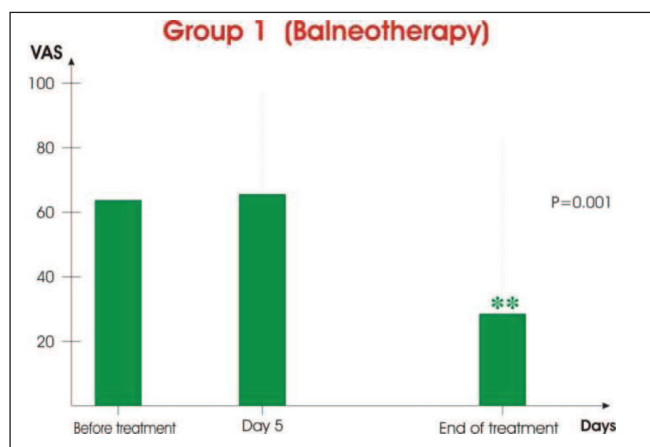


Figure 1: VAS levels measured at three different points in time. We observed an increase in pain on the 5th day, not statistically significant, after three weeks of therapy the decrease in pain was statistically significant (p=0.001)

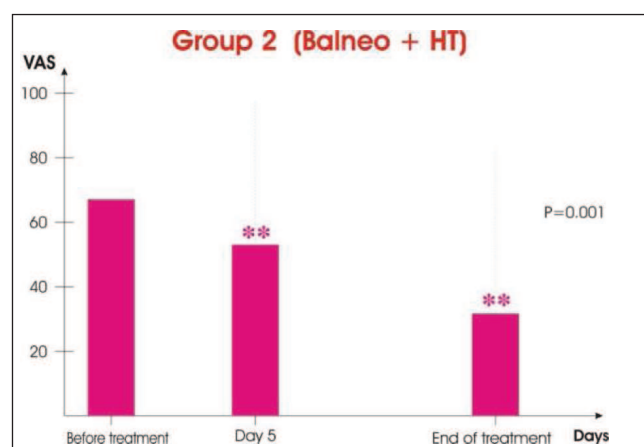


Figure 2: The levels of VAS measured at three different points in time. We observed statistically significant (p=0.001) decrease in pain on the 5th day and at the end of the therapy.

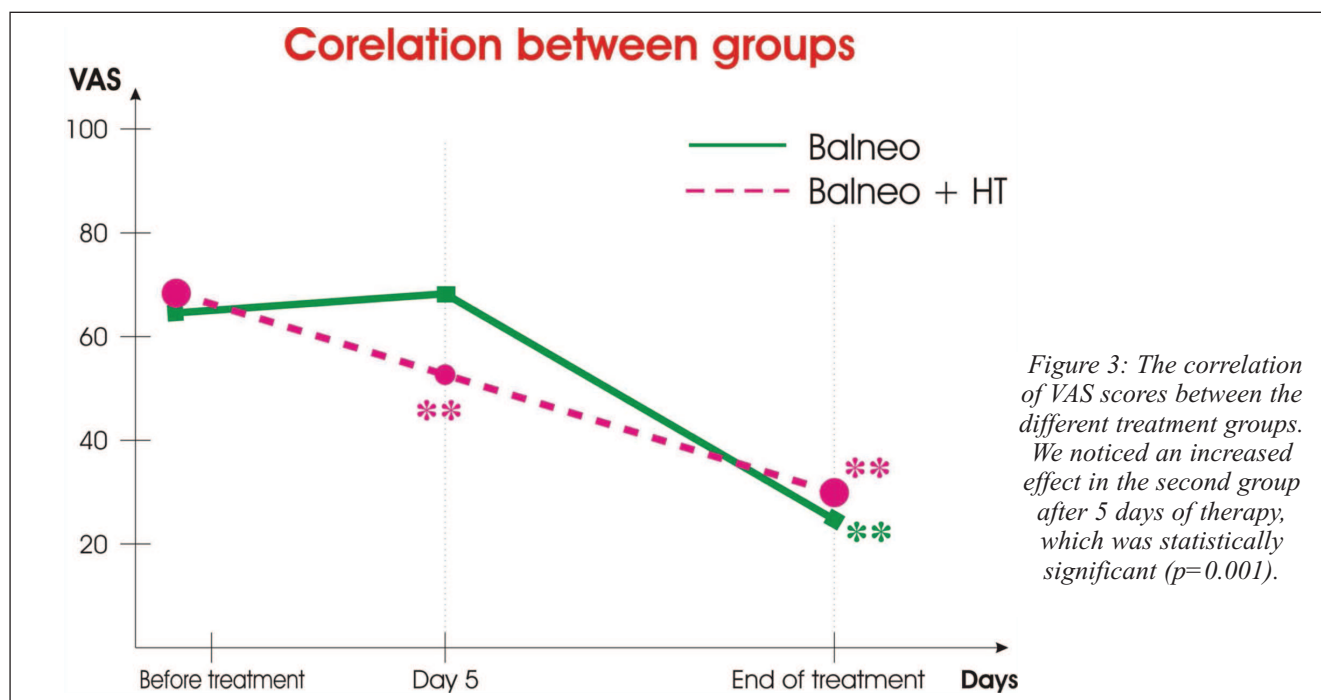


Figure 3: The correlation of VAS scores between the different treatment groups. We noticed an increased effect in the second group after 5 days of therapy, which was statistically significant (p=0.001).

The second group was treated with HT (PRO ElecDT® 2000) and balneotherapy. Horizontal® Therapy targets the major pain causing effects of Osteoarthritis. HT initiates anti-inflammatory action, swelling reduction and stimulates regeneration effects, which are similar to healing effects. Horizontal therapy is delivered via a very pleasant and mild electrical pulse (4.357-12.346 Hz). Electrodes are attached to knees area for a treatment lasting 30 minutes.

All therapies were provided once per day, six days a week. The average duration of the treatment time period was 19 days in the first, and 15 days in the second group. In both groups the pain levels (VAS scale) as well as the range of motion in the knees were documented. Measurements were done 3 times during the study period: Before the first treatment, on the 5th day and at the end of the treatment. The statistical analysis included Student's t test.

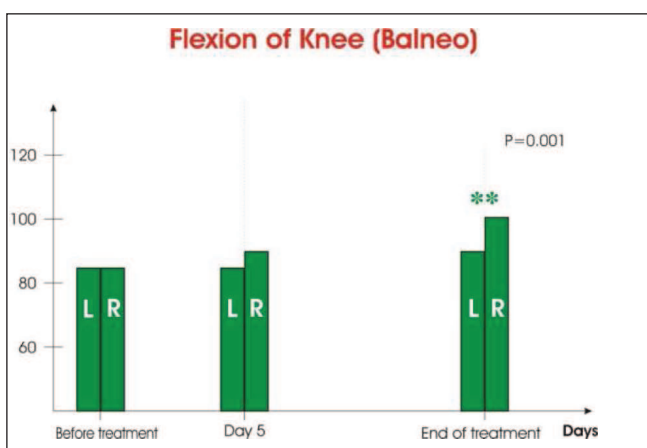


Figure 4: The levels of flexion of the knee at different points in time. In the balneo group we noticed statistically significant ($p=0.001$) increase in the range of motion of the knees at the end of the study period.

RESULTS

In both groups of patients a significant relieve of the pain ($p=0.001$, Figures 1 at 2) and increase in mobility in the knees ($p=0.001$, Figures 4 at 5) was observed at the end of the third week. However, patients who were treated with balneo and HT experienced significant pain relieve and increase in range of motion in the knees ($p=0.001$, Figure 3) after only five days.

CONCLUSION

Among patients with gonarthrosis the desired pain relief is achieved after five days. Therefore, the temporary effect of balneological reaction is being alleviated and the length of the treatment can be shortened.

Despite a century long use of balneotherapy, at least since the Roman times, for the treatment of musculoskeletal and other disorders, the precise mechanism of the beneficial effects of spa therapy remain still unknown. Balneotherapy is perhaps the oldest treatment modality for rheumatic conditions and is still unique and plays a central role in the effects of any spa therapy regimen. Balneo uses the buoyancy, assistance and resistance of warm mineralized water to relieve pain, induce muscle relaxation and unload the lower limbs.

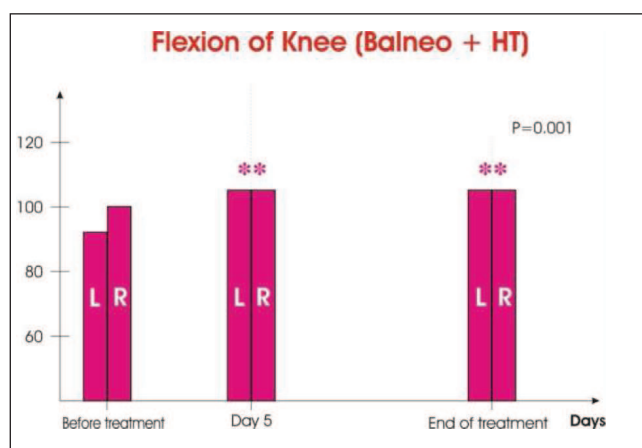


Figure 5: The levels of flexion of the knee at different points in time. In the balneo combined with HT group we observed statistically significant ($p=0.001$) increase in the range of motion of the knees after only 5 days of treatment.

Horizontal® - Therapy promotes the metabolism, support the circulation, increases the lymphatic transports and enhances the diffusion processes. The function of the chondrocytic is improved with HT and the production of the hyaluronic acid is supported. Therefore, it makes sense why many patients describe a sensation similar to an "oil change" in their knees after the first treatment with HT.

Apstrakt

Cilj: Ispitati efekat Horizontalne® terapije na smanjenje bola i povećanje pokretljivosti u kolenima u korelaciji sa balneoterapijom kod nacićenata sa OA kolena.

Metod: Efekat balneoterapije praćen je kod 36 pacijenata sa gonartrozom, podeljenih u dve grupe. Prva grupa lećena je samo blatnim pakovanjima na kolena i kupanjem u sumporovitoj vodi (14.5 mg/l H₂S, pH 6.6), 20 minuta dnevno, 6 uzastopnih dana u nedelji, ukupno tri nedelje. Druga grupa je dobijala Horizontalnu terapiju HT (PROElecDT® 2000) zajedno sa balneoterapijom. Electrode su postavljane na oba kolena, 30 minuta. U obe grupe pratili smo intenzitet bola meren po VAS skali, i obim pokreta u kolenima. Merenje je vršeno 3 puta za vreme studije: na početku lećenja, 5-og dana i na kraju tretmana. Statistićko poređenje vršeno je korišćenjem Studentovog t testa.

Rezultat: Kod obe grupe pacijenata na kraju lećenja beležimo znaćajno smanjenje intenziteta bola (p=0.001) i povećanje obima pokreta u kolenima (p=0.001). Međutim, u pacijenata koji su lećeni balneo i Horizontalnom terapijom, već nakon pet dana beležimo znaćajno smanjenje bola i povećanje pokretljivosti u kolenima (p=0.001).

Zaključak: Kod pacijenata sa gonartrozom može se postići smanjenje bola već nakon pet dana lećenja. Na taj naćin možemo ublažititi privremenu banjsku reakciju i skratiti dućzinu lećenja pacijenata.

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