

## THE EFFECT OF THE THERMAL TREATMENT ON THE CHRONIC LOW BACK PAIN IN FELIX SPA ROMANIA

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### **Abstract:**

*The aim of this study was to identify the effects of thermal treatment in Medical Rehabilitation Ambulatory Felix Spa, on patients with chronic low back pain. We studied a group of 200 patients with chronic low back pain.*

*Outcome measures were visual analogue scale scores, Schober's sign, Oswestry. The study parameters were administered at baseline, immediately after treatment (18 days). The data were analyzed using SPSS package and tests of statistical significance by Student method (t test) and  $\chi^2$ .*

*After treatment, there was a significant improvement in all parameters in the thermal water group to the medication. This improvement was still evident after 18 days. The improvement in the control group was less substantial compared with baseline values. Comparison of the 2 treatments revealed a statistically significant difference in visual analogue scale and Oswestry.*

*In the group treated with thermal water, improvement occurred earlier, lasted longer and was statistically significant.*

**Key words:** low back pain, thermal water, medication.

### **INTRODUCTION**

Low back pain affects almost 80% of the population over a lifetime. In 90% of cases, symptoms resolve over a period of 2–4 weeks, but recur within one year in 60–80% of patients. Chronic low back pain is defined as symptoms persisting longer than 7–12 weeks. Chronic lumbar pain is usually accompanied by musculoskeletal pain of other localization, manifestations of the involvement of other organs, and anxiety, as well as by enhanced dysfunctional perception and pain management in chronic cases. In the USA, health expenditure on low back pain totals \$50 billion a year, of which 80% constitutes indirect costs. A variety of treatment options is available for the management of chronic low back pain. (Balint GP, et. al., 2007)

Balneotherapy involves spending time in an indoor pool filled with mineral water at temperature of 36°C. Different types of mineral water may be used in this therapy.

In addition to its physical properties, the mode of action of thermal water probably involves transcutaneous absorption of mineral solutes. Balneotherapy comprises mud therapy, oral administration of mineral water, and the therapeutic use of naturally occurring gases. Hydrotherapy,

by contrast, is based on the physical properties of water; this treatment modality is in use all over the world, primarily for the management and rehabilitation of patients with musculoskeletal disorders.

Felix Spa is the largest resort of its kind in Romania. The thermal waters of this area have the following mineral content: the concentration of total dissolved solids (TDS) is up to 1,300 ppm, mostly of the calciumsulphate-bicarbonate type. The main elements present are Ca, Mg, Na, K, Li, Mn, and Fe; there are also small quantities of dissolved noncondensable gases (up to 200 ppm), mainly CH<sub>4</sub> and CO<sub>2</sub>. (Cohut and Tomescu, 1993); a very small content of <sup>222</sup>Rn (about 23 – 70 pCi/l) renders the geothermal water undrinkable in general, but also contributes strongly to its therapeutic effect in health bathing; the geothermal water in the Felix Spa reservoirs is neutral (pH 6 at 20°C). (Rosca M., Farcas. D.M., 2010)

The aim of the current study was to evaluate the effectiveness of thermal mineral water compared with medication in the treatment of patients with low back pain, with pain level, mobility and quality of life as primary end-points. Secondary end-points were to record changes in the dose requirements of analgesics and explore the safety profile of treatment.

## **MATERIAL AND METHODS**

Criteria for inclusion in the study were who presented with chronic lumbar pain, more than 12 weeks, age over 18 years. Patients with the following conditions were excluded from the study: acute pain; acute organic neurological deficit accompanying low back pain; confirmed osteoporosis, neoplastic or inflammatory lesion as the underlying cause of low back pain; decompensated cardiovascular disease; unstable hypertension, angina pectoris; uncontrolled endocrine disease (hyperthyroidism, hyperparathyroidism); other uncontrolled and unstable metabolic disorders (diabetes mellitus, hyperuricaemia, hyperlipoproteinaemia); acute febrile infections; cutaneous suppuration.

Patients were randomized into either of the 2 treatment groups. One group was treated with thermal water, whereas the other group was treated with medication. The water temperature was 36°C. Subjects underwent 20-min hydrokinetotherapy sessions daily for 18 days. Both treatment groups received additional electrotherapy under standardized conditions and the second group received AINS medication.

Baseline and post-balneotherapy assessments were performed by either of 2 medical rehabilitation physicians. The subjects were assessed at baseline and after 3 weeks. They were assessed with health surveys

called visual analogue scale and Oswestry at baseline and discharge. Effects were analyzed according to sensitivity statistics (effect size, ES).

## RESULTS

The mean age of the patients was 48.03 years; 118 subjects were female (59%) and 82 males (41%), (Fig.1)

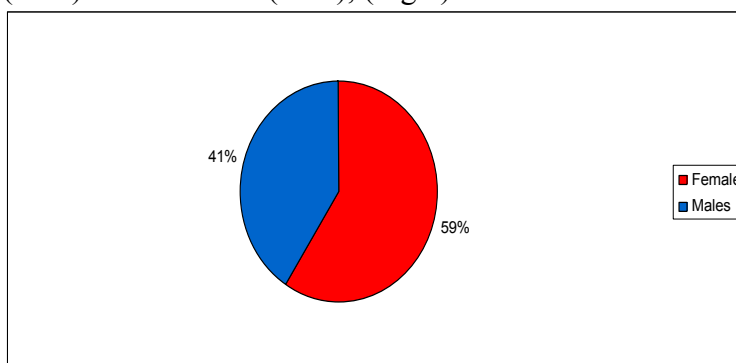


Fig. 1. Distribution of patients by sex

Evolution of pain scores after the first 18 days of treatment, show a statistically significant decrease in both groups compared with baseline ( $p < 0.001$ ). After this period, the decrease is more pronounced pain score in study group compared with controls. (Table I; Fig. 2)

The study group patients ( $n = 200$ ) were followed the parameters: pain, functional impact. To highlight the impact of injury on daily functioning and activities we have relied on indices of assessment of pain and its subsequent disability: Oswestry questionnaire.

Evaluation by test objectifies Oswestry pain, function, and assigns a significant percentage daily activities - ADL (Activities of Daily Living) in all its aspects: self-care, social and professional life. Areas of investigation are reported back pain symptoms. The activities recorded are: personal care (dressing, bathing, makeup / shaving), weight lifting, walking ability, sitting, standing, sleeping, sex life, social life and work.

Table 1

Pain was assessed using VAS scale at admission and after 18 days

### Group Statistics

	Tratament	N	Mean	Std. Deviation	Std. Error Mean
Vas_0	HKT + NSAIs	100	6,4000	,66667	,06667
	Medicine treatment	100	6,4300	,74203	,07420
Vas_18z	HKT + NSAIs	100	2,3100	,56309	,05631
	Medicine treatment	100	3,4500	,91425	,09143

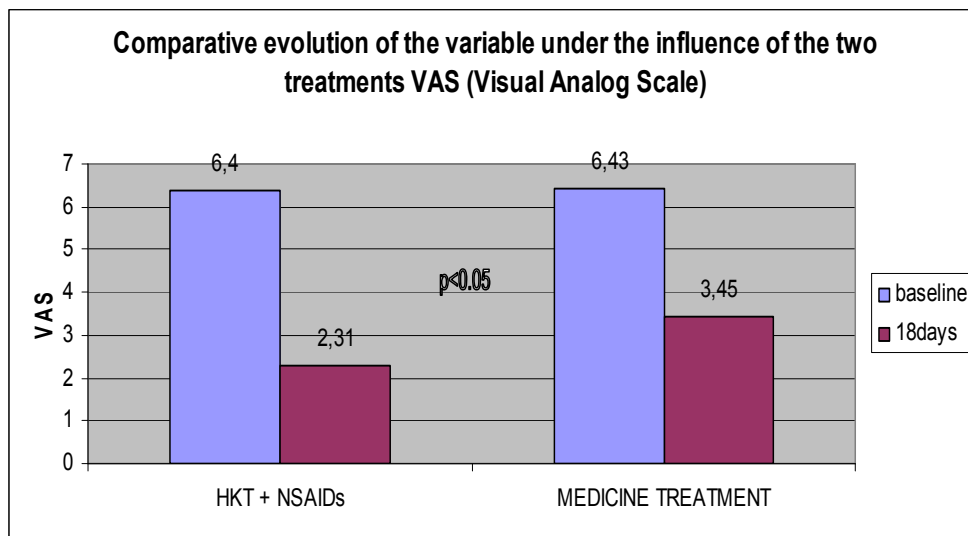


Fig. 2. Comparative evolution of the variable under the influence of the two treatments VAS

The average Oswestry score (baseline) from 47.64% in group I the average sum of the areas investigated by 23.82 points and the second 48.48%, which is 24.24 points. (Fig. 3)

The average Oswestry score reveals a severe disability in both groups present.

Comparing averages Oswestry score in patients enrolled in the two groups revealed statistically significant differences ( $p > 0.05$ ). (Table II, III, IV; Fig. 4)

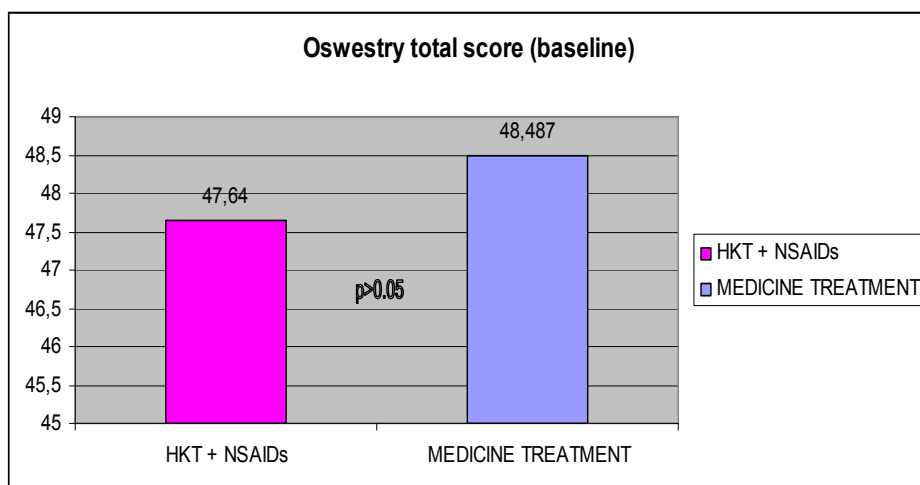


Fig. 3. Oswestry total score (baseline)

Table II

## Oswestry scor baseline

Domains registered	HKT + NSAIDs	MEDICINE TREATMENT	Statistic
Pain intensit	58%	58,6%	p>0,05
Personal Care	33,8%	35%	p>0,05
Lifting weights	<b>58,6%</b>	<b>59,8%</b>	p>0,05
Walk	44,8%	45%	p>0,05
Sitting position	44,8%	45%	p>0,05
Standing	<b>58,6%</b>	<b>59,8%</b>	p>0,05
Sleep	44,8%	45 %	p>0,05
Sexual Life	44,8%	43,4%	p>0,05
Social Life	32,4%	34,6%	p>0,05
Professional Life	<b>58,6%</b>	58,6%	p>0,05
Total Average Score	<b>47,62%</b>	<b>48,48%</b>	p>0,05

Table III

## Oswestry total score after 18 days

	Deficit procentual	Media±SD
HKT + NSAIDs	<b>16,02%±8,24</b>	<b>7,9±2,56</b>
MEDICINE TREATMENT	<b>28,84%±10,33</b>	<b>14,42±7,66</b>

Table IV

## Oswestry score on the areas of investigation after 18 days

Domains registered	HKT + NSAIDs	MEDICINE TREATMENT	Statistic
Pain intensit	20%	29,2%	p<0,05
Personal Care	0%	19,80%	p<0,001
Lifting weights	<b>30%</b>	36%	p<0,05
Walk	24,8%	30%	p<0,05
Sitting position	20%	30%	p<0,05
Standing	24,8%	39,6%	p<0,001
Sleep	11%	12,8 %	p>0,05
Sexual Life	24,8%	30,4%	p<0,05
Social Life	4,8%	17,6%	p<0,001
Professional Life	24,8%	<b>43%</b>	p<0,001
Total Average Score	<b>16,02%</b>	<b>28,84%</b>	p<0,05

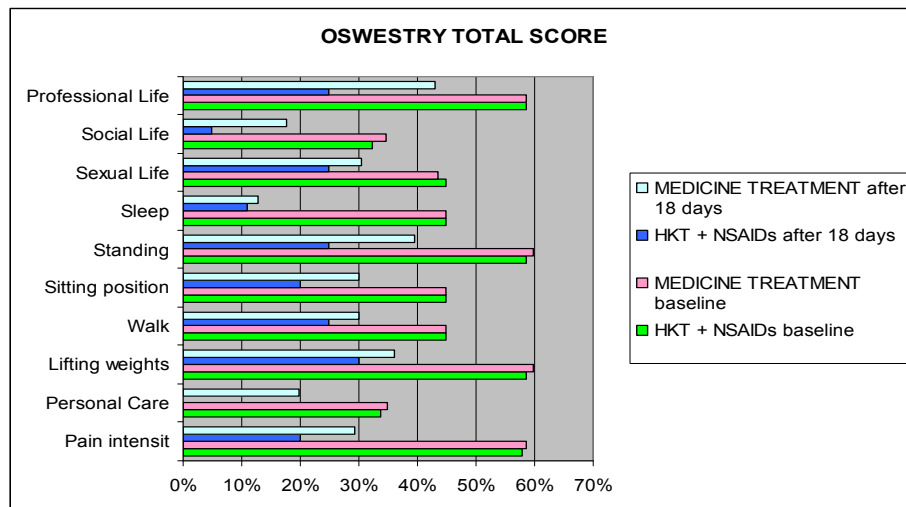


Fig. 4 Oswestry total score on the areas of investigation

## CONCLUSIONS

- degenerative process substantially the same proportions affecting both women and men
- Pain score (VAS apciat by index) decreased significantly after the first 18 days in study group compared with controls.
- s deficit items investigated using Oswestry score cases in the two groups at admission did not differ significantly ( $p > 0.05$ )
- The difference between the two groups is observed after the 18 days of rehabilitation, when the majority of items have statistically significant differences ( $p < 0.001$ ).
- Thermal treatment in Felix Spa has a beneficial role in improving health status in patients with low back pain.

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