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HARKANY MEDICINAL WATER**Csaba Gilbert***Zsigmondy Vilmos Medicinal Spa Hospital, Harkány, Hungary*

Harkány is a city with approximately 3000 inhabitants located in the south-west part of Hungary close to the border of Croatia. The climate is sub-Mediterranean temperature fluctuations are relatively low the average number of sunshine hours is high 2025 yearly.

Harkány resort is famous all over the world. The resort is obliged its fame to the water coming up to the surface from the depth of 50-70 meters at the temperature 62,5°C and having the content unique for European resorts. The content of mineral compounds in thermal water is near 1000 mg/l. From the medical point of view its most important element is carbon sulphox-

ide (COS), which amount is near 12 mg/l. This compound is in a растворённом газообразном content in the underground water. When the water comes up to the surface, COS liberates and begins to разлагаться, turning into a gaseous сероводород, which adds a specific odour to the water. This compound was unknown till 1860, when chemical analyses were made in Harkány. It actively penetrates into the body both through skin and respiratory tract and absorbs 150 times more intensive when sulphur four-valency compounds (sulphates). The mineral content of the water is given in the Table below.

Table

Chemical content of the medicinal water, resort Harkány (Hungary)

Concentration of components, mg/l		
1	2	3
Potassium	K ⁺	15,5
Sodium	Na ⁺	158
Ammonium	NH ₄ ⁺	1,88
Calcium	Ca ²⁺	50
1	2	3
Magnesium	Mg ²⁺	11,2
Iron	Fe ²⁺	0,01
Manganese	Mn ²⁺	0
Lithium	Li ⁺	0

Concentration of components, mg/l		
1	2	3
Cations, total: 237		
Nitrate	NO ³⁻	0,4
Nitrite	NO ²⁻	0
Chloride	Cl ⁻	105
Bromide	Br ⁻	0,61
Iodine	I ⁻	0,12
Fluoride	F ⁻	1,39
Sulphate	SO ₄ ²⁻	6,9
Hydrocarbonate	HCO ₃ ⁻	525
<i>sulphooxid</i>	S ²⁻	12,4
Aniones, total: 652		
Methasilicon acid	H ₂ SiO ₃	55
Carbonic acid, free	CO ₂	242
Content of salts, total: 990		

Dermatology

Harkány's resort medicinal water is used more than 200 years for the treatment of different gastro-intestinal diseases, locomotor system, some gynecological and skin diseases, especially, psoriasis. Similar by content and action water is in two more places in the globe and the nearest is the Dead Sea.

The thermal water of Harkány has been used for the treatment of psoriasis for decades. The salts diluted and the sulphurous gas in the water from where it evolves and then is absorbed through the skin and the epithelium of the air passages, both help to reduce the pathological processes. The water has an anti-inflammatory and skin regenerating effect so it helps to make psoriasis asymptomatic.

Results of researches

The first results of the randomized, blind-evaluated trial concerning the antipsoriatic effect of the spa water of Harkány are available. So far 50 persons from both sexes, between the ages of 25 to 79, suffering from chronic, plaque-type psoriasis were included in the study. The members receiving spa water baths (25 minutes two times a day) for 21 days and as a local treatment 0,1% dithranol ointment was applied on their skin signs (15 minutes once a day). In the *placebo* group the baths were made by tap water (25 minutes two times a day) and the local treatment was identical with that of the other group. The skin conditions of the patients were evaluated by an independent dermatologist on the basis of PASI on the 1st and 21st day. Related to the initial score (which was set to 100%), on day 21 the PASI score was reduced to 34,3% in the 'spa water' group and to 59,5% in the placebo group. The difference is statistically significant and shows the antipsoriatic activity of the spa water of Harkány.

Patients with psoriasis are treated using the elements of classic dermatologic therapy and natural spa cure. The complex treatments are built around the bath tubs that contain thermal water coming through a system that is closed from the wells, and they make use of the synergistic opportunities realized during the research.

Synthesis of the basic treatment is as follows:

- First , status measuring medical examination
- Regular supervision by specialists
- Two times 30 minutes baths in spa water daily
- Light therapy (311 nm wave-length of UVB light / PUVA treatment)
- Short time anthralin ointment treatment
- Other non steroid local treatments in case of needed

- Final examination, specialist summarizing evidence
- In case of joint problems the basic treatment is extended with the followings:
- Examination and continuous supervision by rheumatology specialist
- Physiotherapy ordered by the specialist

We offer our cures in case of chronic, plaque-type psoriasis and problems of the rheumatology and dermatology borderline, including psoriasis and its complications.

Baths are taken in separated tubs in discrete circumstances. After the first bath directly patients get light-therapy (contraindications taken into consideration). After the second bath a 20-minute anthralin treatment is applied. The ointment is removed at the end of the cure by shower in spa water, with shower gel containing spa water. We guarantee emollient for our guests.

The locally applied medications can be absorbed better through the skin in the case of patients bathing in the medicinal water. During light therapy the ultraviolet rays reach the deeper strata of the skin more easily, too. Based on this, the active ingredient content of the ointments can be reduced to the fourth of the average after the tub baths. During treatment we also use less total dosage of ultraviolet light.

As a result of this, the complex treatment at Harkány is well-tolerated and has no significant side effects.

Therapy is individual for every patient. We put great emphasis on other underlying diseases, medication for these, skin type and the characteristics of the existing psoriasis. We also pay attention to the exploration of provoking factors, and give help to avoid these. We employ personalised therapeutic processes in order to make the asymptomatic period as long as possible.

In case of more serious cases we use medication as well. Psoriasis and its

joint problem side-effects are fit well into the profile of the Spa-hospital of Harkány. Our excellent rheumatologists and specialists in locomotors diseases, physiotherapist assistants and gymnasts can ease the pain.

The treatments of the skin symptoms take 1.5 – 2 hours a day (in case of locomotors complaints physiotherapies need more time). Schedules of therapies are flexible and act upon the patients' needs to our limits so that they can have most of the day relaxing and leisure-time programmes.

- Contraindications:
- Serious circulation problems
- Tumour
- Infectious diseases
- Incontinence problems
- Acute joint inflammations
- Thrombosis
- Positive varicose

Cures take two to three weeks time where in the first intensive period accommodation and the adequate treatments are guaranteed by the Spa-Hospital of Harkány. A three star hotel allocation with double bedrooms with bathroom, television, and fridge are basic equipments. Full board consists of smorgasbord menu for lunch and dinner served to rooms.

Post-treatments take place at the chosen four or tree star hotels where our almost symptom-free guests continue therapy with the same spa water just in a more restful surrounding. Cures in hotels are carried out by professionals and the Spa-Hospital continuously provides secure medical supervision.

Gynaecology

Using several decades worth of experience at the Harkány medicinal spa hospital and the renowned beneficial effects of the Harkány medicinal waters, we provide a full range of rehabilitative gynaecological, physical and balneotherapy

treatments for patients coming to us with the following problems:

- Infertility of unknown origin
- Chronic inflammations of and adhesions in the lesser pelvis
- Symptoms caused by endometriosis
- The need for rehabilitation after gynaecological surgery
- Disorders caused by menopause
- Rehabilitation of 'pelvipathia vegetativa' and other disorders accompanied by chronic abdominal pain
- We employ the following gynaecological treatments in our hospital:
- Balneotherapy with medicinal waters
- Abdominal mud pack treatments – utilizing mud from Héviz mixed with Harkány medicinal waters
- Therapeutic massage
- Physical therapy

Following gynaecological, laboratory and ultrasound examinations the treatment generally takes three weeks. In the case of accompanying rheumatologic disorders additional treatments may be recommended by rheumatologists or doctors specializing in rehabilitation.

The gynaecological treatments have provided 636 encouraging results according to our research. A survey showed that following a three week course of therapy with Harkány medicinal waters and accompanying physical therapy, in the case of primary infertility of unknown origin 37%, and in so-called secondary infertility – where after an earlier successful pregnancy they were unable to conceive again – 52% had pregnancy within one year. Child bearing resulted in 80% of these pregnancies.

Similar success can be achieved with numerous chronic inflammatory gynaecological disorders as well; for patients with inflammation who took part in balneotherapy treatments 40% were healed and 42% saw long-term improvement. This

unique gift of nature has delivered lasting success when employed for the treatment of other gynaecological pathologies as well, for example everyday pain accompanying endometriosis, which significantly impacts quality of life and fertility, and adhesions following surgery. The spring water with its significant dissolved mineral content and the other accompanying physical therapy treatments, such as combining the use of Hévíz mud containing phytoestrogens and women's exercise, resulted in a particular significant improvement in menopausal pathologies.

We track the effectiveness of the comprehensive treatments again, in part through the opinions of the patients themselves, and in part through conditions assessments based on objective diagnoses – utilizing abdominal palpation and ultrasound – performed by specialists in gynaecology. Based on the levels of a visual analog scale (VAS) before the course of treatment, after the course of treatment and then 3 months later, it can be determined that the rehabilitative treatments in this comprehensive manner achieved an improvement of more than six levels on average. These numerical values faithfully reflect the accounts of satisfied patients.

On the basis of controlled clinical trials performed on large numbers of patients recently, the Harkány spring waters also received an official certification as "medicinal waters" for the aforementioned gynaecological pathologies.

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In the article presented the main data about medicinal water from Harkany resort (Hungary) is given. On the basis of the detailed chemical content of the water under discussion its efficacy for the treatment of gastro-intestinal, locomotor, reproductive systems diseases is proved. The greatest

efficacy it has as to the dermatological diseases, especially psoriasis.

Key words: medicinal water, clinical trail.

МИНЕРАЛЬНАЯ ВОДА КУРОРТА ХАРКАНИ

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В представленной работе излагаются основные сведения о минеральной воде курорта Харкани (Венгрия). На основе детальных данных о химическом составе минеральной воды доказана ее эффективность в отношении заболеваний желудочно-кишечной системы, опорно-двигательного аппарата, репродуктивной системы и кожной патологии, особенно псориаза.

Ключевые слова: лечебная минеральная вода, клиническое испытание.

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льмос, Харкані, Угорщина

У представленій роботі надано основні відомості про мінеральну воду курорту Харкані (Угорщина). На основі детальних даних про хімічний склад мінеральної води доведена її ефективність відносно захворювань гастроінтестинальної системи, опорно-рухового апарату, репродуктивної системи і шкірної патології, особливо псоріазу.

Ключові слова: лікувальна мінеральна вода, клінічне випробування.

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