

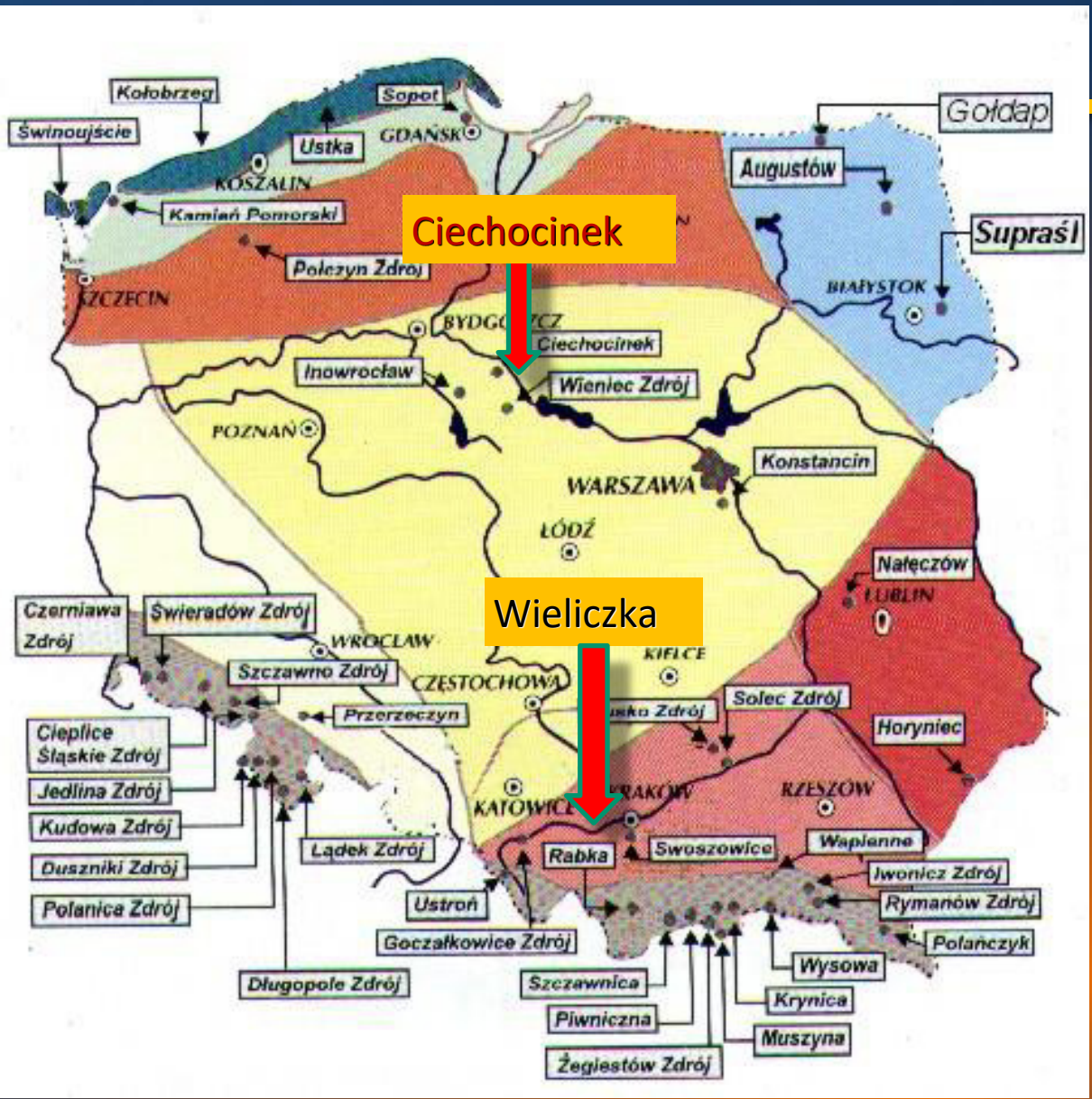
Polish experience of therapy in salt mine Wieliczka

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Polish thermal stations





Subterranotherapy is a kind of therapy which uses specific characteristic properties of an underground microclimate to treat, mainly respiratory and allergic diseases.



Agenda



- History of subterranotherapy
- Subterranotherapy as a specific method of climate therapy
- Treatment procedures in salt mine Wieliczka
- Scientific background of subterranotherapy in Wieliczka
- Indication and contraindication for treatment
- Conclusions



Short history



- The first notes about this kind of treatment appeared in the 16th century (Schroeter, Wilichius, Schneeberger)
- The first physician who treat patient underground in salt mine was M.D. Feliks Boczkowski XIX century
- The scientific background of Polish subterranotherapy was made in XIX and XX century
- New age of Polish subterranotherapy started in 1958
- 1964 the first in the world underground thermal hospital „Kinga” (211m underground) head Prof. Mieczysław Skulimowski
- But only in 2011 the Minister of Health has established Wieliczka underground thermal center



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Przez
Dr. F. Boczkowskiego.

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1843.



Properties of microclimate in Wieliczka Salt Mine



The health properties of the microclimate depends on the natural properties of the salt body, the relative constant monitoring of ventilation and humidity and the large area of the therapeutic compartments.



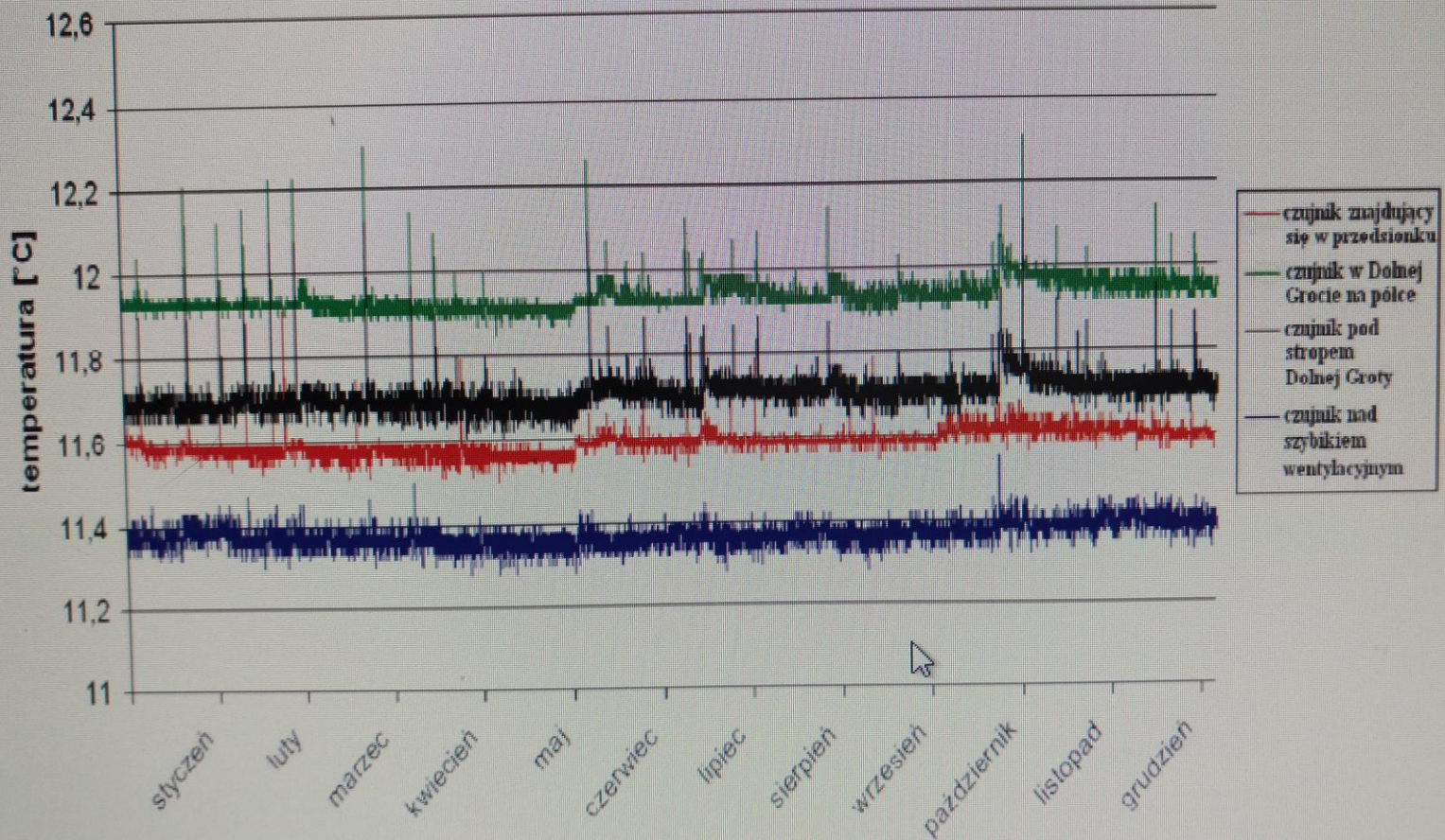
Properties of microclimate in Wieliczka Salt Mine [2]

- Stable temperature 13-15 °C
- High humidity 70-90%
- Increased atmospheric pressure
- Specific aerosol (NaCl 24mg/m³, K⁺, Fl⁺, Ca⁺, J⁻)
- Negative air ionization
- Clean air from pollutants and allergens
- Isolation from acoustic, light, electromagnetic stimuli
- Small radon activity



Important!!!

Properties of microclimate in salt mine do not change during therapy even after group therapy.





Treatment procedures

- Treatment is currently being performed in two treatment chambers (135m underground): „Jezioro Wessel” and „ Stajnia Gór Wschodnich”
- There are two program of treatment:
 - During the day
 - During the night

Treatment procedures during the day

- Salt aerosol inhalation
- Exercises
 - respiratory exercises,
 - sports games
- Resting in salt chambers,
- Educational program,
- Walking tour.





Treatment procedures during the day

[2]



- Time of procedures: 7-8h
- Frequency: a day or a second day
- Time of treatment 14-21 days

*During one procedures patient absorbs about **85 mg of sodium chloride**. For comparison, when inhaling the sea spray in 5-8 hours (typical thassootherapy), this value is only 8-14 mg.*



Treatment procedures during the night



- Sleeping in the salt chamber for regeneration of the airways (night regeneration is definitely better), alleviation of nighttime asthma attacks and improvement of general well-being
- Night treatment in the underground chambers allows the use of therapies for working people who can not stop work.

Stajnia Gór Wschodnich



Jeziro Wessel





Scientific background?



Until the 1980s, the Cracow University of Medical Sciences conducted a study on the effectiveness of treatment and the mechanism of subterraneotherapy. They have confirmed that approximately 60% of patients with allergic asthma are improving either during or after treatment, including reduced drug use and severity of bronchial asthma attacks, as well as reduced pollen allergy and dermatological allergy.



Control group study

Number of patient 21 in both group

Asthma control test [ACT], PEF, MEF 75, VC, FEV 1 was estimated

Statistically improved ACT and MEF75

Conclusion: The pulmonary rehabilitation program combined with subterranotherapy helps to control asthma, especially in patients suffering from poorly or moderate controlled asthma.

The influence of pulmonary rehabilitation in the Wieliczka Salt Mine on asthma control - preliminary results

Kostrzon M et all. Przegl. Lek 2015



Kohort study

- 300 patients in observation with atopic asthma
- Time of treatment 21 days
- Improvement 207 patients (reduction of drugs, better quality of life, reducing of dyspnoea)

Szczeklik A. et al: Wskazania i przeciwwskazania do leczenia w Wieliczce na podstawie analizy 300 przypadków, Probl. Uzdrowiskowe 1979,12,35-38



Other studies

- I found 8 other studies between 1970 to 2010
- The scientific quality of these studies are not good
- Lack of good quality study with randomization to proof healths properties of treatment in Salt Mine Wieliczka

Indication to subterraneanotherapy in Poland

- Asthma mainly atopic
- Chronic bronchitis
- Dermatological allergy
- Allergic rhinitis
- Dyslipidemia???



Contraindication to subterranotherapy in Poland

- Cardiac failure NYHA III and NYHA IV
- Malfunction of movements (patient should walk to the treatment chamber about 1000m)
- Acute exacerbation of asthma or chronic bronchitis
- Cancer diseases
- Hyperthyreosis
- Pregnancy
- Claustrophobia





Conclusions



- Many patients returning to the mine every year reported that up to 6 months after their stay,
- Asthmatic asthma had significantly reduced their asthma symptoms and increased resistance to respiratory infections.
- The number of medicines consumed and the need for antibiotics also decreased.
- Subterraneotherapy may be a valuable treatment for pollen allergy during the symptom season - nasal and olfactory patency improves.
- The chamber microclimate alleviates skin pruritus in case of allergic eczema and alleviates eczema.



THANK YOU FOR ATTENTION!!!