

Are the Negative Effects Occuring in the Thermal Therapy?

Poland

Prof. dr hab. Irena Ponikowska

FEMTEC , ISCHIA 2017

The aim of the lecture

- I would like to present of possible adverse effects and medical cases(errors) in the Thermal Medicine, based on date of literature and the own observation in order to avoid them

Introduction

- It is generally recognized that balneotherapy is completely safe, free of undesirable consequence
- however, there is no evidence to support of this hypothesis , because adverse effects, side effects are not monitoring during the thermal treatment

Negative consequences of treatment patients in the thermal department

**I. Adverse effects and undesirable symptoms of the
treatment methods**

II. Medical cases (errors)

III. Accidens

I. Definition of adverse effects in balneology

- An additional, usually undesired reaction of the patients to balneological procedures
- It may be associated with the medical procedures or unpredictable effect (often as an immune reaction)

Two types of adverse effects

- A. **Acute disorders** ,quickly diagnosed symptoms, just after treatment
- B. **Long-term effects** unnoticeable during treatment, developing slowly with potential relevance as a results prolonged sessions of treatment or high dosage application

Possible reactions of the adverse effects are:

1. Pathological reaction on the thermal methods of treatment
2. Intolerance to balneological procedures
3. Allergic reaction to natural resources and the other medical factors
4. Others



Possible adverse effects
during thermal procedures-
examples

Possible adverse effects of drinking cure



- During drinking cure can increase blood pressure, emergence of oedema and heart failure
- Symptoms can occur as a result of drinking water too quickly or too large quantities (over-dosage)
- Moreover drinking mineral water can aggravate stomach ache as a result of drinking water highly saturated with CO₂ in patients with hyperacidity

Possible adverse effect of Inhalations

■ Bronchial symptoms:

- * Bronchospasm
- * Dry cough

as well

■ Generalized symptoms:

- * Vertigo
- * Syncope

The reasons:

Cold aerosol



Breathing too fast or too deeply

Possible adverse effect of Hiperthermal- therapy

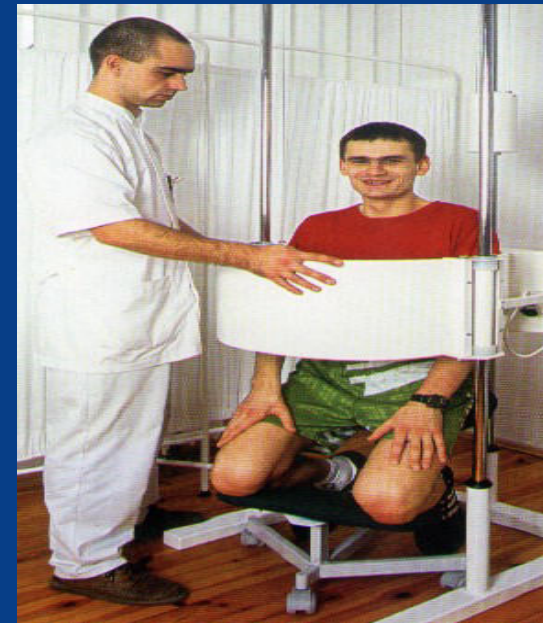
- Burns
- Activating inflammatory focus
- Increased swelling
- Bleeding
- Heat stroke
- Generalized symptoms as a result of overheating during sun-bathes(overdosis) or improper behaviour patients in the sauna

B. Long term adverse effects

These effects are characterized by chronic effects and difficult to identify

More often production **free radical oxygen formation are observed** (ROS) during:

- Intensive physical exercise
- Cryotherapy
- Excessive heat (hot therapy)
- Ozone-therapy
- Ultrasonotherapy
- Magnetic field – therapy
- Electrotherapy



Intensive physical exercise and oxidative stress OS(2)

- Intensive physical effort leads to oxidative stress
- Consequences OS are:
 - damage heart and skeletal muscle
 - Many metabolic and organ disorders



Nowak A.: Wpływ kriostymulacji". Bydgoszcz.Coll.Med.2005(habilitation dissertation)

Possible long term adverse effects during whole body cryotherapy

Because of:

- Cryotherapy stimulates ROS generation
- Leads to prooxydative/antioxydative imbalance and as a consequences- oxidative stress

II. Medical case (medical errors)- Definition



Deterioration of the health status, illness or death of the patient as a consequence of proceedings (action or negligence) discordant with the current medical knowledge.

Medical errors(cases)

Type of medical cases(errors)	Results
Decision errors	• Diagnostic errors • Therapeutic errors(using inappropriate treatment)
Execution errors	• Resulting from applying a medical procedures incorrectly
Organisational errors	• Resulting from improper management of institutions providing healthcare

Incorrect treatment orders

- Discordant with indications
- Discordant with recommendations
- Inappropriate choice of parameters
- Incorrect joining of procedures

Incorrect procedure execution

- Poor technique
- Inability to select the proper parameters, overdose
- Lack of proper control over the procedures

Consequences of medical cases in thermal medicine are:



- Burns
- Frostbite
- Poisoning (CO₂, H₂S, Rn)
- Infections during bathing
- Cardiovascular accidents
- Hemorrhages
- Injuries, lesions
- Death

Burns, frostbite

- Burns can occur during many procedures like:

- balneotherapy,
- hydrotherapy,
- electrotherapy,
- actinotherapy.

Particularly dangerous in patients with:

- Lower extremities ischaemia
- Diabetic foot syndrome
- Sensory disturbances

- Frostbite may be as a result of cryotherapy (incorrect technique)

Cardiovascular accidents

Symptoms:

- Occurrence of arrhythmias
- Induction of atrial fibrillation
- Aggravation of coronary pain
- Aggravation of circulatory failure
- Myocardial infarction
- Stroke

Can occur when excessive stimulation procedures are used which exceeds the patient's adaptative capacity

Injuries

1. Injuries can happen during exercise, in cabin another places, there are:

- Fractures
- Contusions
- Sprains
- Soft tissue wounds

2. Particular injuries may happen in patients with epilepsy, hypoglycaemia (incorrect diagnosis or incorrect order procedures)

Death

In literature we can find information about case of death due to:

- Allergic pneumonia as a result of exposition to fungus in sauna*

- *Huang W.C. et al: Sauna lung: hypertension pneumonitis due to Exophiala jeanselmei. Respiriology.2010,15, 573-576*

- Heat stroke in sauna in patient with undiagnosed Hashimoto disease*

- *Siegler R.W.:Fatal heat stroke in a young woman with previously undiagnosed Hashimoto's thyroiditis. J.Forensic.Sci. 1998,43,1237-40*

III. Accidentes

- They have no connection with thermal treatment, applying procedures or incorrect organisation healthcare
- Most often are injuries: fractures, sprains, soft tissue wound, falls and bruises, heart attack and so on

Accidentes-Injuries

Can happen anywhere in the thermal station

- In the room
- At a nurse's or physician's office
- In the treatment cabin
- During exercise in the gym or pool

Summary and Conclusions

- It is necessary to monitor the adverse effects and medical cases in thermal medicine-based health care
- Tracking and preventing adverse effects allows improving the quality of medical services
- It is necessary to carry out very thorough and careful medical documentation of every event and undesirable symptoms

THANK YOU



Prof. Dr hab. Irena Ponikowska

The effects of intolerance to balneological procedures

- Tissue damage
- Pain
- Skin lesion
- Generalized symptoms- syncope

Possible adverse effects of Electrotherapy

May be:

- Severe pain
- Burn skin
- Allergic skin lesions

Infections

- Urinary tract infection may happen while bathing in tub , pool or Jacuzzi

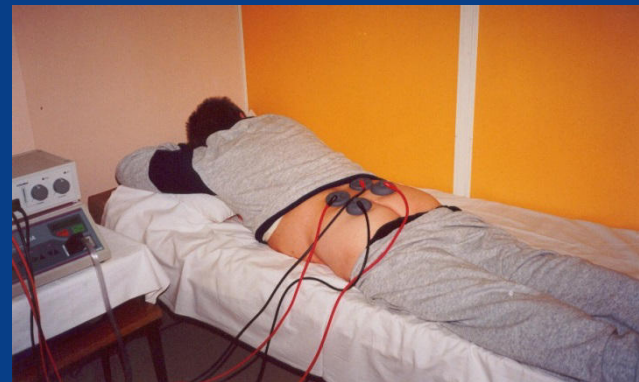


Thermal Phenomen Reaction

- 1. Non- specific minor symptoms do not require medical intervention
- 2. Specific symptoms associated with diseases like: occurrence of heart arrhythmia, aggravation coronary pain, fluctuation of blood pressure
 - These symptoms may be dangerous

Allergic reaction to the natural resources and another treatment factors

- Ingredients of healing water: chlor, bromine, CO₂, H₂S, NaCl, others
- Ingredients of water disinfecting in bath or swimming pool
- Energy radiation: UV- radiation, solar radiation
- Electrical current
- Others



Haemorrhages

- In patients with proliferative retinopathy, vitreous haemorrhage is possible during procedures associated with increased pressure in the chest and abdominal cavity (pool and bathtub immersion, excessive physical exercise)
- Another reason of bleeding may occur in patients using antithrombotic therapy and patients with haemophilia as a result of balneotherapy and hydrotherapy, kinezytherapy

Decision errors

