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MEDDOM
tel. 604-208-453,
barbadom@wp.pl

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CELL BIOLOGY TECHNIQUES IN BALNEOLOGY

Dr Constantin Munteanu, dr Diana Munteanu

Romanian Association of Balneology, Romania

The new criteria of evaluation show the impressive leap registered on the therapy with natural cure factors, from the crisis periods when there were no solid scientific substantiation, the methodology used being based more likely on the empiricism, to the multiple studies and scientific examinations which proved the efficiency of therapeutic and rehabilitation cures for different groups of diseases, based on a complex methodology.

The modern evaluation of the health, the welfare, and the quality of life imposes the continuation and development of scientific study for the establishment of action mechanisms and curative effects of the natural therapeutic factors. There are considered as a priority the studies on the methodology and effects of "health cures", which represent the most important domain of the primary prophylaxis of the major diseases from the pathology related to the life style of civilization from the new millennium.

The experimental study design on cell cultures allows the direct biological evaluation at the cellular level, of the therapeutic effect that natural factors can play over the organism.

Techniques for obtaining cell cultures requires a complex and laborious task that starts from live tissue sampling, continuous with isolation of cells and their preparation for sowing a culture plate. This preparation involves mechanical and enzymatic action from the researcher on biological material.

Derived cell cultures are monitored morphologically by high-performance inverted biological microscope, with video camera for image acquisition. In the final stage, the cells are scraped, and through biochemical and molecular techniques, the therapeutic efficiency hypothesis of the investigated natural factor is verified experimentally.

The cell cultures can be crioconservated in special containers with liquid nitrogen.

25 YEARS OF HALOTHERAPY. ACHIEVEMENTS AND PROSPECTS

Prof. Dr. med. Alina V. Chervinskaya

Department of Restorative Medicine, Sport Medicine, Balneology and Physiotherapy of Institute of Post-Degree Professional Education of the Federal Medical and Biological Agency of Russia, Russia,
Medical and Science Director of Institute of Respiratory Hygiene and Halotherapy Kft. Budapest, Hungary

Halotherapy technology has been known and used in medical practice since the beginning of the 90s of the last century (over 25 years). Therapeutic properties of the atmosphere of underground salt caves is at the heart of halotherapy. These caves are now used in the resorts of Poland, Austria, Germany, Slovakia, Hungary and other countries; the method is called speleotherapy, subterraneoterpia. The main factor that has a therapeutic effect for respiratory diseases is fine particles of natural rock salt suspended in the air.

Halotherapy belongs to non-drug therapies based on the use of the salt air environment in the room that is close in the parameters of the conditions of underground salt speleoclinics. Curative effect of halotherapy is provided by an air medium saturated with dry sodium chloride aerosol with predominance amount of respirable particles in size and of a certain density range. Halotherapy is carried out in the premises equipped with medical facilities – dry salt aerosol generators and control devices.

Halotherapy is widely used in Eastern and Western Europe, USA, Canada, Australia, New Zealand, China, Cyprus, India, Turkey and other countries. This is evidenced by the numerous sites on the Internet offering services of halotherapy in medical and health centres (keywords: «галотерапия», «соляная терапия», «halotherapy», «salt therapy», "salt room", etc.).

Many years of experience in the development and implementation of the salt air microclimate in the premises (salt rooms, halochambers) allowed improving the method of halotherapy and equipment for its realization. To improve the efficiency and safety of the treatment, it was considered appropriate to carry out an aerosol dispensing and management level of concentration of salt aerosol per cubic meter of air. Devices were created for controlled halotherapy - dosing halogenerators - ACA 01.3 ("Aeromed" Russia, St. Petersburg) and GDA-01.17 ("Halomed" UAB, the Republic of Lithuania, Vilnius).

Halotherapy technology have been presented as repeatedly at various scientific forums: at the Russian Respiratory Society, the Russian Society of Pediatricians, the European Respiratory Society (ERS) in Firenze (1993), Berlin (1997), Munich (2006), Glasgow (2004), Vienna (2009, 2012); the International Society of Medical Hydrology, Balneology, and Climatology

(ISMH) in Istanbul (2006), Porto (2008), Paris (2010), Granada (2012); International Society 'Interasma' in Jerusalem (1996), Poznan (2005); International Congress "Russian Biotechnology" in USA, the Polish Association of Balneology and Physical Medicine Crynica (2005), Polanica (2007), Lodz (2008), Nalenchov (2011), Krakow (2013), Wieliczka (2014), at leading Russian and International exhibitions of medical and health equipment in Moscow, St. Petersburg, many other Russian cities, Richmond, Hannover, Dusseldorf, Stuttgart, Bologna, and others.

The method of halotherapy has been applied since 1990; tens of thousands of adults and children in different countries have been treated. The method of halotherapy is being studied and practically used by many patient care institutions and medical scientific institutions. More than 400 articles and essays on the subject were found. Information about the method of halotherapy, mechanism of its action, results of the research and efficiency are presented in a number of scientific reviews.

The experimental and clinical research has shown, that dry sodium chloride aerosol influents on the different pathogenic elements of pulmonary diseases. It enhances respiratory host defence, has mucolytic and bronchial drain effect, renders anti-inflammatory and immune modulatory action and increases the mucosa resistance to the action of infection. Not only its antimicrobial effect was proved, but also the change in a balance of conditionally pathogenic and normal microflora towards the improvement of biocenose of the mucous membrane, that points to an enhancement of its resistance. Halotherapy has both the treatment and prevention activity.

Since 1995, we have used an innovative medical technology - controlled halotherapy. It allows for differentiated metering and control of the level of salt aerosol when performing the treatment. It allows for objective treatment, which enhances the effectiveness and safety of the procedures. Adding of halotherapy to the complex of recovery treatment and rehabilitation of patients with chronic bronchopulmonary pathology in recovery and stabilization phase allows to achieve the maximum clinical effect in 82 - 96% patients with optimum doses of drug therapy and to decrease medication. Data analysis of the long-term follow-up showed that upon taking the complex therapy with halotherapy application in pulmonary patients, remission is prolonged.

The studies provide evidence of the effectiveness of halotherapy in adults and children with asthma, acute and chronic bronchitis, COPD, cystic fibrosis. Application of special salt aerosol concentration modes enables to apply halotherapy not only for respiratory diseases, but also for ENT-pathology, as well as in the field of dermatology. As prevention, halotherapy has been applied to persons with frequent acute respiratory viral infections, suffering from hay fever, with risk factors (occupational exposure to pollutants, smokers). The available sources contain no information about complications in the application of the method.

In recent years, we have the opportunity to use the halorooms, halokabins for the realization of halotherapy. They can fully function without salt covering. This option is the most optimal of cost and the use of office space. Currently halorooms are widely used in paediatric care, rehabilitation centers, Day Care-centers, the SPA industry. This option gives a broader perspective of using the beneficial properties of dry sodium chloride aerosol as a means of respiratory hygiene.

In recent years, a new area of controlled halotherapy application in health sector has started to develop – HaloSpa technology. Staying in comfortable environment and a positive impact on psycho-emotional state create additional opportunities and advantages for the use of halotherapy in SPA-centers during health vacations.

Thus, halotherapy has great potential for use. Thanks to the possibility of a differentiated approach, controlled halotherapy has the potential to be used in rehabilitation, balneology, the health resort and SPA industries. There is the great potential for the use of halotherapy in children's prevention and rehabilitation. The specialists are in need of determination of role and place of salt rooms and halotherapy in European Balneology and Spa Resorts.

MANAGEMENT IN REHABILITATION

Prof. Sholpan Bulekbayeva

Republican Children`s rehabilitation center JSC, Astana city, Kazakhstan

Summary. The problem of effective management of the personnel in rehabilitation is actual in modern conditions of financial and economic crisis taking into account tendencies of world management. Human resource management (HR management) is an integral part of qualitative control systems of the organization aimed at providing the organization with the qualitative personnel capable to carry out the labor functions assigned to it and its optimum use. Relevance of a subject is defined also by that the end results of rehabilitation also depend on search of the most productive ways of human resource management that is an important medico-economic problem.

Research objective. studying and improvement of process of management of the personnel when rendering rehabilitation services in the Republican children's rehabilitation center (further the Center).