The Balneology paradox

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First of all, thanks the International Journal of Biometeorology for giving us an opportunity to discuss the nomenclature problems of a science with 1,000-year-old traditions (Gutenbrunner et al. 2010). Secondly, I would like to express my gratitude to the authors for their huge and hard work. The task is urgently required; the lack of exact definitions and keywords profoundly inhibits preparation of systematic reviews and meta-analyses. An obvious consequence would be the conservation of this medical field at a stage that is far from the level of evidence-based medicine. I can agree with the authors in vast majority of their proposals; however, allow me also to call attention to some basic non-medical aspects of this issue.

Balneology

My first question is very simple and basic. Should we define the word Balneology at all? “Health Resort Medicine, Balneology, Medical Hydrology and Climatology are not fully recognised as independent medical specialities” write the authors in the first sentence. In my opinion, Balneology should be deleted from this list because it is not a medical field or speciality. It is much more: a basic science. As a basic science, it involves approaches, methodologies (in brief: knowledge) from hydrology, geology, geochemistry, analytical chemistry, microbiology, ecology, etc., and of course medicine as well. This means that geology or chemistry may also define this terminus technicus based upon their specific approaches. I do not think we have the right to define it using our specific attitudes, which reflect only a slice of this big pie. We would rather use (and of course define) Medical Balneology1 or Balneological Medicine.

Scientific evidence

The authors have compiled a useful list of external arguments against recognition of MB, some of which were effectively countered in the paper. Nevertheless, available scientific evidence in this field is, in my opinion, very sparse and, even when present, weak. Double blind trials are necessary, but it is very hard to deliver exactly the same conditions for two studied groups without recognising the organoleptic features of the bathing water. In drinking cure the situation is similar considering the taste.

Balneotherapy versus crenotherapy

I agree with the authors regarding the inconsistency in the use of terms in the literature, and use of Crenotherapy in Latin-speaking countries is somewhat disturbing to other investigators. However, if we consider that Balneotherapy can be generated from Balneology as a basic science, and since Crenology (as a basic science) is not used or known in the English language, Balneotherapy could be the most appropriate term. (Balneo is at least traditional since it comes originally from the Ancient Greek: balneos.2

1 I use Medical Balneology in the rest of the text, abbreviated as MB.
2 For this reason, I proposed “Balneos” as the title of an international scientific journal supported by the recently established International Balneological Research Centre, Budapest.
The Balneotherapy paradox

Well, it is a paradox, but balneotherapy is based on the fact that we are not aware of the active substances, agents or mechanisms. In cases where the waterborne active substance is known (iodide, fluoride in drinking cure; radon or hydrogen sulphide in spa waters, etc.), the application is called by name, e.g. fluoride supplementation, radon therapy, etc., i.e. not depending on the means or matrix of the treatment. It is also true, however, that only the efficacy of well-defined active substances can be compared in meta-analyses or systematic reviews. Each spa water is a unique entity. We are very far from an exact knowledge of the chemical composition of these waters. Therefore I find exclusive use of term “mineral water” very problematic if used as a component in MB definitions. This term refers only to inorganic components, completely ignoring dissolved organic, colloidal, suspended, etc., fractions. A healing (medicinal) water is not just a solution of minerals or gases, it is a complex physico-chemical system! Thousands of organic compounds can be observed and isolated, and several have been identified. Biologically active organic ingredients have also been described in these waters. Artificial mineral waters can be prepared but the original composition of a natural healing water cannot be reproduced. (See in detail: Varga 2010). As a consequence, it cannot be stated (as the authors do) that healing waters “require minimum concentrations of ions and/or gases for evocation of relevant chemical effect” because their effect may be independent of these inorganic components. That is why I propose the term healing water instead of mineral water. Let us leave mineral waters for the bottled water market.

Wellness, medical wellness, health promotion, prevention

The public health expert is involved mainly in these fields of Balneology. In my practice, Health Promotion means predominantly education: teaching health behaviour and attitudes in order to prevent disease. The difference, if any, between wellness and primary prevention in this regard is that the latter is a more purposeful, conscious and usual activity. But where is the place of Balneoprevention in this system? This term was proposed not only for the prophylactic use of healing waters but also for testing toxicity of waters and peloids (Varga 2010). Since there are many organic and biologically active compounds in spa waters and peloids, some of them may also have toxic (mutagenic, carcinogenic, etc.) features. To prevent these actions, toxicity tests should be performed with these matrices, and the theoretical risk (e.g. of cancer) should be eliminated (Gerencsér et al. 2010). This is especially recommended in the case of products intended for home use without medical control.

Balneotherapeutical products at home

Manufacturing home products would be a very useful initiative in the field of Balneotherapy. But how should they be named (balneoproducts, balneomedicines, paramedicaments)? These products should be microbiologically and toxicologically safe, should have the same healing effect as in the health resort, and be easy-to-use (Varga et al. 1998). In some cases (e.g. peat products), this is almost impossible. Concentrated salt mixtures for preparing “healing water” are safe but therapeutically ineffective. But standardised and effective balneological products could also be used in comparative trials, helping accumulation of scientific evidence and decreasing the “locality” of balneotherapy. That is, it is not only the lack of definition that inhibits scientific acceptance of balneotherapy. Medical products are also urgently needed in order to perform independent, reproducible and comparative clinical and laboratory studies.

I hope these few thoughts may contribute to working out proper definitions towards preparing a really useful dictionary of this field of ours.

References


3 A series of toxicity studies supported by the Medical Faculty (grant no. 34039), University of Pécs, has been published.