Balneotherapy and atopic dermatitis

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ABSTRACT

Atopic dermatitis is a common skin disease in animals, especially in pets, as it is in humans. Mites, bacteriological and allergic factors play a role in the formation of the disease. In balneotherpic applications, people with atopic dermatitis are treated successfully with thermal mud. SPA muds have healing effects on dermatitis due to their rich mineral compositions and healing properties. Despite this potential, however, we observed that there is no study related to SPA muds and atopic dermatitis from the investigations carried out. This review will be the first to investigate the effects of balneotherapy mud on atopic dermatitis.

Key words: Atopic dermatitis, balneotherpy, humans, animals.

INTRODUCTION

Atopic dermatitis (AD) is a chronic relapsing allergic inflammatory skin disease that currently affects millions of children and adults worldwide (Bajgai et al., 2017). Atopic dermatitis is a chronic and recurrent, Th2-dominant hyperimmune disorder resulting in an increasing incidence of skin disease, particularly in industrialized countries (Leung et al., 2003; Boguniewicz et al., 2011; Hwang et al., 2013). Atopic dermatitis has a complex pathogenesis including genetics and is caused by home environment, skin irritants, skin barrier dysfunction and immunological factors (Leung, 1995; Kupper and Fuhlbrigger, 2013; Hwang et al., 2013). Symptoms such as pruritus, dandruff, dryness and inflammation are the most common symptoms during the disease (Day et al., 1996; Halliwell et al., 2001; Temizel and Aytuğ, 2014).

Atopic dermatitis is thought to be closely associated with IgE antibodies to many environmental allergens such as house dust mites, pollen, mold spores, humans and animal epidemics in animals, especially dogs, as is common in humans (Day et al., 1996; Dogru and Citi, 2017; Di Bari, 2015).

Drugs used to treat these inflammatory diseases include anti-histamines, corticosteroids and calcineurin inhibitors but these drugs have their limitations such as adverse effects with their long-term usage. Thus, researcher’s interest in several alternative and complementary therapies are continually growing and balneotherapy is one of these approaches. Therefore, we investigate the bathing effect of high concentration mineral spring water (HMW) on redox balance and immune modulation in 2,4-dinitrochlorobenzene (DNCB)-induced atopic dermatitis like inflammation in hairless mice (Bajgai et al., 2017).

Balneotherapy and mud therapy have been used empirically since time immemorial to treat a wide range of pathologies-mainly those related to chronic inflammation-such as cardiovascular, respiratory, gastrointestinal, endocrine and neurological conditions, and more importantly in skin and rheumatic disorders (Galvez et al., 2018).

Recent evidence emphasizes that SPA therapy is beneficial in several medical conditions, from rheumatic and musculoskeletal diseases to skin, respiratory, circulatory, digestive, and nervous disorders (Voigt et al., 2011; Antonelli and Donelli, 2018). This therapy method has long also been known as a source of relaxation. There are examples of this practice even in ancient Rome, where taking the waters was related to individual health, social habits and cultural traditions (Antonelli and Donelli, 2018).

It is known that SPA products have been used for a long time in dermatological diseases by different methods (Matz et al., 2003). SPA treatment products are bacteriologically pure and have high therapeutic activities (Lotti and
It has been reported that applications with hot spring muds have been used extensively in the treatment of diseases such as acne, roseola and psoriasis as well as, romotoid diseases (Shani et al., 1993; Cozzi et al., 1995).

Wiedow et al. (1992) reported that balneotherapeutic practices have resulted in highly injured outcomes in atopic dermatitis cases. However, it should be kept in mind that the healing properties of balneoterpic sludge applications are directly related to the regional mineral and compound content. Notwithstanding, absorption of biologically active inorganic and organic substances through the skin also play a role in the effectiveness of balneotherapy. In vitro and in vivo studies established that some water-soluble minerals are able to permeate the human skin and seems to be the key mechanism responsible for the improvement in some clinical outcomes, in both balneotherapy and mud therapy, thus, implying that those beneficial effects are not exclusively linked to the action of heat.

Despite this increasing evidence, it is difficult to analyze the specific effects of each mechanism and each chemical component separately. Each mineral-medical water and mud around the world has different distinctive physical properties and chemical composition. According to their predominant ions and gases, mineral-medical waters may be classified as chlorated, sulfur, ferruginous, carbogaseous, sulfurous and radioactive (Galvez et al., 2018).

As a matter of fact, minerals such as magnesium, sulfur, selenium, calcium and zinc are directly related to the skin structure and may have regional changes in the SPA mud (Matz et al., 2003; Elitok, 2011). It is a well known site in terms of mineral composition and healing effects in terms of balneoterpic mud sources (Elitok, 2011). Despite the fact that there are a lot of important SPA mud resources, neither humans nor animal studies have been found so far investigating the therapeutic effect on atopic dermatitis. We suggest that further studies should be carried out as regards humans and animals in this aspect.

REFERENCES


