Balneotherapy and nephritis

Accepted 30th July, 2018

ABSTRACT

Nephritis is a kidney inflammation that is common in animals, as well as in humans. Depending on the size and prevalence of the damage, kidney function is disturbed and as a result, symptoms such as fatigue, fever, pain, high blood pressure, change in urine color and edema develop. Proteinuria, a consequence of reduced renal filtration and reuptake, is a frequent finding. It is known that the traditional methods of using hot spring water in bath and drinking style provide important benefits in nephritis and other kidney disorders.

Keywords: Nephritis, balneotherapy, human, animals.

INTRODUCTION

The prevalence of kidney diseases across the globe is on the increase. Moreover, kidneys play an important role in metabolic activities. The function of minerals and water absorption, acid-base balance and buffer systems is regulated by the kidney and is of vital importance (Foley et al., 1998; Miller, 2014; Tani et al., 2017).

It has been reported that animal models are available to provide valuable information on animal and human health and to offer new treatment options (Rabe and Schaefer, 2016). In this regard, it is assumed that the planned work will provide important data about human and animal health, as well as nephritis cases.

Animal models are essential tools to understand the mechanisms underlying the development and progression of renal disease and to study potential therapeutic approaches. Recently, interventional models, suitable to induce acute and chronic kidney disease in the mouse, have become a focus of interest due to the wide availability of genetically engineered mouse lines. These models differ by their damaging mechanism (cell toxicity, immune mechanisms, surgical renal mass reduction, ischemia, hypertension, ureter obstruction etc.), functional and histomorphological phenotype and disease evolution. The susceptibility to a damaging mechanism often depends on strain and gender. The C57BL/6 strain, the most commonly used genetic background of transgenic mice, appears to be relatively resistant against developing glomerulosclerosis, proteinuria and hypertension (Rabe and Schaefer, 2016).

The involvement of IP-10 and CXCR3 has been shown also in several other types of tissue damages such as glomerulonephritis or central nervous system lupus. Urinary IP-10 is a sensitive and non-invasive diagnostic tool for monitoring lupus nephritis patients, and the response to treatments (Elia, 2015).

It has been shown that spa waters have significant benefits in endemic nephropathic cases in humans using balneotherapeutic methods (Maharaj et al., 2014). It is known that treatment with hot spring waters has healing effects on kidney diseases, as well as skin and rheumatic diseases since ancient times (Elitok, 2011; Ricciardi et al., 2016). Nocco (2008) reports that balneotherapeutic cures involving potable and bathing therapies, especially in the treatment of chronic conditions such as nephritis, have significant positive effects on rehabilitation.

The rich mineral content of the waters were deemed effective in the treatment and improvement of kidney function, for curing kidney stones, regulating diuresis and for their uricosuric properties. Among the main components are: sodium, calcium, chloride, sulphur and carbon. For instance, the hot springs have been described and cited as the most popular for their ability to dissolve kidney stones. Drinking thermal spring water was considered effective in the treatment of kidney and urinary tract pathologies, promoting the expulsion of kidney stones and preventing kidney stone formation (Ricciardi et al., 2016).
Balneotherapy is are well-known practices, even though limited studies have demonstrated its medical effects. When the side effects of drug treatments are emphasized, spa therapy may be considered as an interesting option for human and animals with nephritis. Although, a literature review that investigated the effects of balneotherapeutic methods in animal associated with nephritis could not be determined, we believe that this review study will provide important and new data.

REFERENCES


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