Suggestion on experimental animal model of the dermatitis with dampness-heat syndrome in the traditional Korean medicine

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ABSTRACT
According to the traditional Korean medicine, Dampness-heat (DH) is an abnormal state of the body that results in a pathological accumulation of dampness and heat. DH is caused by overeating fatty, sweet foods or overdrinking alcohol. Exposure to hot and humid atmospheres is another cause of DH. Although many experimental animal model on various diseases related with DH syndrome were established, DH syndrome dermatitis model is not established. Thus, we introduce the experimental animal model of the dermatitis with DH syndrome.

Keywords Dampness-heat syndrome, traditional Korean medicine, experimental animal model, dermatitis

Dampness-heat (DH) in traditional Korean medicine (TKM)

DH (濕熱) is a concept in TKM that refers to an abnormal state of the body that results in a pathological accumulation of dampness (濕邪) and heat (熱邪). The DH pattern/syndrome is a pattern/syndrome caused by a combination of dampness and heat, either of external or of internal origin, with different manifestations according to location, e.g., jaundice (Song, 2008) when the DH accumulates in the liver and gallbladder, leucorrhea (Im, 2005) when the DH pours down, and diarrhea (Choi, 2007) for the DH in the intestines, atopic dermatitis for the DH on the skin (Kim, 2006), obesity (Lee, 1996) for the DH all over the body.

The cause of the dampness-heat

The dietary irregularity is one of the causes of the DH. It includes overeating fatty, sweet foods and alcohol. According to "Introduction to medicine: external contraction (醫學入門: 外感)", the DH is caused by the dietary irregularities; surfeit of alcohol, cold food and condensed milk e.g. (因飲食失節或酥酪酒漿生冷過度以致濕熱), “Complete works of Jingue (景岳全書)”, “集證談牙 (美酒厚味者釀成濕熱也)”, “Principles and Practice of Eastern Medicine” (Dongguibogam), “Co...” and “...” (東醫寶鑑), there are explained that the DH is caused by alcohol, sweet & fatty food.

In addition, the hot and humid atmospheres cause the DH. According to “Treatise on the Spleen and Stomach(脾胃論): (長夏濕熱胃困尤甚用清暑益氣湯論)”, in the midsummer, it is at the peak of dampness and heat(時當長夏，濕熱大勝).

Introduction of the existing experimental model on the DH syndrome

Many scientists established experimental animal model on various diseases related with DH syndrome. DH model is set up by feeding high-fat&sweet diet, putting into the artificial temperature chamber at 32 ± 0.5°C, 60 ± 5% air humidity. This model is based on “On Dampness-heat Diseases”, the internal damage of greater yin, the retention and accumulation of dampness fluid, and additional infection of external pathogen causes the DH syndrome (太陰內傷 湿飲停聚，客邪再至，內外相引，故病濕熱).

1. Ma et al. (2011) introduced “The mouse model of dampness-heat syndrome infected by Dengue virus”

BALB/C and C57BL/6 mice were divided a normal control group, the Dengue virus infection group, and the dampness-heat group. The body temperatures, platelet counts, virus in the separate serum, pathological changes of the liver and serological indicators were determined.


The liver injury was induced by alpha-naphthylisothiocyanate and carbon tetrachloride respectively. The liver function tests were measured by analyzing the serum level of alanine aminotransferase, aspartate aminotransferase, alkaline phosphatase, malondialdehyde, total bilirubin, superoxide dismutase, glutathione peroxidase as well as the ratio of liver weight to body weight.

ulcerative colitis in rats with dampness and heat syndrome”
Rats were divided into the model group, Huangqin decoction group and mesalazine group. Ulcerative colitis was induced by intrarectal administration of 2, 4, 6-trinitro-benzene-sulfonic acid. Histology analyses were performed to determine the inflammatory cell infiltration (H&E staining) and the number of mast cells (toluidine blue staining). The expression of tryptase was detected by using immunohistochemistry, and serum cytokines (IL-4 and IL-6) levels were measured using ELISA.

Wistar rats were randomly divided into 6 groups: 1) normal control group, 2) damp-heat syndrome model group, 3) Haoqinqingdan decoction group (high dose), 4) Haoqinqingdan decoction group (medium dose), 5) Haoqinqingdan decoction group (low dose) and 6) ribavirin group. The body temperature of the Z. H. Tang / www.e-tang.org

ONCLUSION

DH syndrome related with various diseases such as jaundice, hepatitis, colitis and atopic dermatitis. Many studies introduced experimental animal model on various diseases related with DH syndrome e.g. “dampness-heat jaundice syndrome”, “ulcerative colitis with dampness-heat syndrome” and “dampness-heat syndrome with MHV-A59 infection”. However, dermatitis model related with DH syndrome has not been established. Thus, we propose a new experimental animal model of the dermatitis model.

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CONFLICT OF INTEREST

The authors declare that there was no conflict of interest.

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