FROM AQUAPORINS STUDY ON DIURETIC EFFECT OF RADIX SCROPHULARIAE IN WATER-LOADED RATS

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Abstract: Backgrounds: The main organs of the body to regulate the balance of water metabolism are the large intestine, lung, heart, small intestine, liver, kidney, salivary gland, pancreas and trachea, which play an important role in the body's water metabolism process. Water metabolism is closely related to aquaporins(AQPs) in various organs. AQPs play a crucial role in the water transmembrane transport in different kinds of cells. AQPs are not only closely related to the occurrence of related diseases, but also provide a new target for the development of related drugs. However, diuresis effect of Radix Scrophulariae was rarely recorded. Radix Scrophulariae was recorded in 《Bie Lu》 for "xia shui". Radix Scrophulariae was recorded in the "Compendium of Materia Medica" as a diuretic. The application of Radix Scrophulariae was described in compound shishui wan, si zhi zhong man prescription, zhu ling powder, xijiao yin, etc. Studies on diuretic effect of Radix Scrophulariae in water-loaded rats from aquaporins have not been reported at home and abroad. It provides a new way for Radix Scrophulariae to treat disorders associated with abnormal water metabolism .

Objective: To observe the effects of Radix Scrophulariae on urination and the expression of AQPs in normal rats and water-loaded rats, and to discuss its mechanism of diuresis. Methods: 40 male qualified SD rats were randomly divided into five groups, including control group, water-loaded model groups, Radix Scrophulariae high, middle and low dose groups. Rats in each groups were given corresponding drug by i.g once a day for 3 consecutive days. On 4th day, rats were intraperitoneally injected and intragastrically given 5ml normal saline after given drugs, urinary amount of each rats in continuous six hours was measured. Then the expression of AQPs protein were detected by ELISA method. Results: The diuretic effect of Radix Scrophulariae on normal rats and water-loaded rats were extremely significant ($P<0.01$) ; Compared with normal groups, the level of AQPs in model groups were significantly increased （$P<0.01$）; Compared with model groups, the level of AQPs in Radix Scrophulariae high dose groups were significantly reduced ($P<0.01$), and the strongest target was pancreas. Conclusion: Radix Scrophulariae might have diuresis effect by reducing the expression of AQP3 protein in the pancreas, regulating fluid passage and reabsorbing water.

Key words: Radix Scrophulariae; aquaporins; diuretic effect

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THE COLD AND WARM PROPERTY OF FRACTION OF SCUTELLARIA BAICALENSIS

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Abstract Objective: To explore the cold and warm property of fraction of Scutellaria baicalensis by detecting related enzyme expression in substance metabolism, energy metabolism, endocrine system and autonomic nervous system in heat syndrome model rats.Methods:The 60 male SD rats were randomly divided into blank control group,model group, total composition group, aglycone group,glycosides group, polysaccharide group.All groups ig for 15 days.Taking the