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Effect of Motherwort total alkaloids on the prostate hyperplasia mice model of pathological changes of related tissue morphology induced by the fetal urogenital sinus implants



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ABSTRACT

Aim: The research was to study the effect of Motherwort total alkaloids on the prostate hyperplasia mice model of pathological changes of related tissue morphology.

Results: Compared with the model group(MG), Motherwort total alkaloid high, medium dose group(HD, MD) could significantly reduced the pathological changes of the prostate ($P < 0.01$); Finasteride(FG) and Motherwort total alkaloid low dose group(LD) could significantly reduce the pathological changes of the prostate ($P < 0.05$); Longbishu capsules(LG), Finasteride, Motherwort total alkaloid medium dose group could significantly reduce the pathological changes of the kidney ($P < 0.01$); Motherwort total alkaloid low dose group could significantly reduce the pathological changes of the kidney ($P < 0.05$); Motherwort total alkaloids could improve the pathological changes of the thymus and spleen.

Conclusion: Motherwort total alkaloid can improve the pathological changes of prostatic hyperplasia in mice.

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1. Introduction

Traditional Chinese medicine regards the body as in a whole, if an organ has problems, it will involves other related organs, so does the whole body. Western medicine believes in the main hormone endocrine theory, growth factors, and cell apoptosis theory. Traditional Chinese Medicine lists it as “Longbi”, “cream card” category (Iftakhar et al., 2015; Xiao and Miao, 2014), common pathogenesis, blood stasis and gas depression, spleen, kidney deficiency etc. It often uses the treatment principles of activating blood to resolve stasis, inducing diuresis for treating stranguria, spleen and kidney deficiency and so on. Motherwort has the effect of activating blood to resolve stasis, inducing diuresis for treating stranguria, clearing away heat and toxic materials. It aims at the main pathogenesis of prostate hyperplasia, improving the pathological changes of related tissues (Zhao and Ashraf, 2016; Huang et al.,

2015; Sarfraz et al., 2016). This paper researches the effect of Motherwort total alkaloids on the prostate hyperplasia mice model of pathological changes of related tissue morphology.

2. Material and methods

2.1. Experimental animals

KM Mice, male, Weight 25–30 g, was supplied by the Experimental Animal Center of Henan Medical, with Animal Permit Number: 0003912.

2.2. Experimental drugs and reagents

Motherwort total alkaloids were supplied by Baoji Guokang Biological Technology Co., Ltd., content >80%, Batch No.: 20090615; Longbishu Capsules, Shijiazhuang Cody Pharmaceutical Co., Ltd., Batch No.: 090106; Finasteride capsules, Jiangsu Yabang Johnson Pharmaceutical Co., Ltd., Batch No.: 080714; Formaldehyde, Zhengzhou Paini Chemical Reagent Factory, Batch No.: 20090401 Penicillin Sodium for Injection, North China Pharmaceutical Co., Ltd., Batch No.: Y0903319.

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2.3. Experimental instrument

Olympus X51 microscope, from Olympus Company; Image pro plus 6.0, from Media Cybernetics Company.

2.4. Experimental methods

We selected 70 7-week-old KM mice, male, weight 25–30 g. They were randomly and uniformly divided into seven groups—one group was the blank control group (BG), with sham surgery; the other six groups were modeled, respectively.

The fetal urogenital sinus was prepared: take clean level of sexual mature mice, weight 25–30 g, with the ratio of male and female (2:1) in a cage. Check vaginal suppository every morning, and use tweezers open vulva, when the semen was in the vaginal solidified into a white emboli, and then block it in the vagina. It indicated that it had mated. As the first day of pregnancy when vaginal plug appeared, kill 16 d pregnant female mice, and remove the 16 d fetal mice. Place the fetal urogenital sinus in a glass flat dish containing saline, and reserve it.

After successful anaesthetizing that model mice by using 10% chloral hydrate (30 ml/kg) to intraperitoneal injection, cut and open the abdomen. Carefully separate the ventral prostate, and take three fetal urogenital sinus tissues from 16d gestational age with the strains of fetal rats. Then implant it into ventral prostate under the stereomicroscope. The mice in the blank control group

were only probed thorn ventral prostate 3 times, and then immediately suture and intramuscular injection of penicillin to prevent infection, 1 times a day for 3 days. After that, divide the model mice random into five groups (10 rats in each group)—model group, positive control group, Motherwort total alkaloids of high, medium and low dose groups. Based on built model, according to the 0.2 ml/10 g, we obtained HD, MD, and LD suspension (75 mg/kg, 37.5 mg/kg, 19 mg/kg, equivalent to 30, 15, and 7.5 times of clinical dose), LG and FG (equivalent to 15 times of clinical dose). The blank group and the model group were given equal volume of distilled water, 1 times a day for 3 weeks.

After the last administration of 24 h, kill the mices, and quickly take prostate, kidney, thymus, and spleen tissue, fixed by 4% paraformaldehyde. Then, observe the pathological changes of the prostate, kidney, thymus, spleen tissue morphology.

2.5. Statistical analysis

Data was analyzed by using SPSS 17 for windows statistical package for statistical data, and the measurement data use the average add and subtract the standard deviation, Comparison between the groups use the analysis of variance; If the variance test was together, it will use the smallest used least significant difference (LSD) method. If the variance was not together, it will used with the Games-Howell test methods, and the date for the grade data was used the Ridit test.

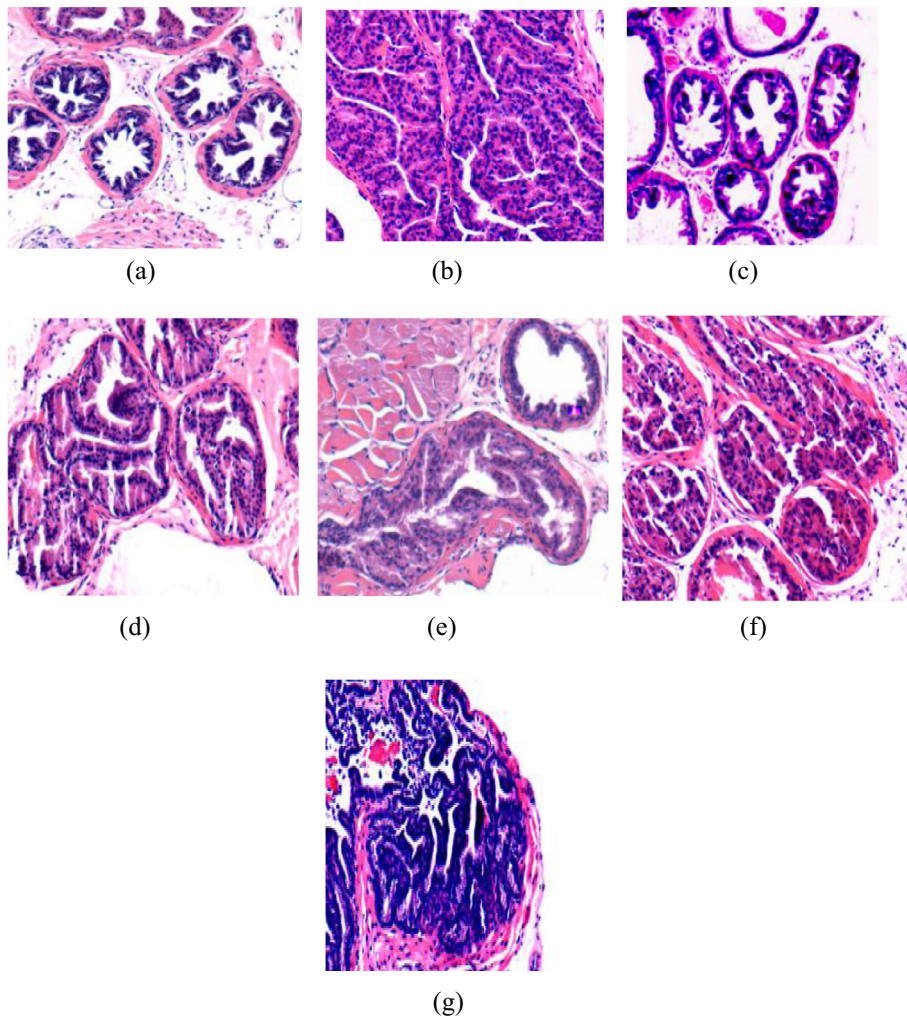


Fig. 1. Pathological observation results of prostate tissue in each group mice (HE*100).

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