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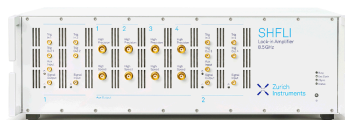
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Experimental Study on Guanzhong Anti-Influenza a Virus FM1 Strain

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Abstract. Objective: To study and analyze the effects of Mianma Guanzhong anti-influenza a virus FM1 strain, and provide valuable reference for future research work. Methods: The effects of three kinds of extracts of Mianma Guanzhong against influenza a virus FM1 strain were studied by using chicken embryo in vitro antiviral test method. Results: In the study, it was found that the preventive effects of the three extracts of Mianma Guanzhong were from water to extract, ether extract and ethanol extract. The therapeutic effects of the three extracts of Mianma Guanzhong were strong to weak. In turn, it is an ethanol extract, an aqueous extract, and an ether extract. Conclusion: Different extracts of Mianma Guanzhong have obvious effects against influenza A virus FM1 strain, which is worthy of attention and promotion.

Key words: Mian Ma Guanzhong; Anti-influenza a virus FM1 strain; Experimental research.

INTRODUCTION

Clinically, Mianma Guanzhong is also known as the northeast Guanzhong, belonging to the dry rhizome and petiole residue of the genus *Francie* [1]. It was first recorded in "Shen Nong's Herbal Classic". Its main functions are deworming, hemostasis, heat-clearing and detoxification. In clinical practice, it is mainly used for abdominal pain, wind-heat, cold, swelling, pain, heat, sore, uterine bleeding and so on [2]. In recent years, research on the mechanism of action of Mianma Guanzhong against influenza virus has gradually increased, and it has also been deepened, which has attracted people's attention [3-4]. In this study, for the purpose of research and analysis of the effect of Mianma Guanzhong anti-influenza A virus FM1 strain, three kinds of extracts of Mianma Guanzhong were used against the influenza A virus FM1 strain by using the chicken embryo in vitro antiviral test method. The role of the research was analyzed and the results are reported below.

EXPERIMENTAL MATERIALS

Drugs and Main Reagents

Choose Mianma Guanzhong Pieces and purchase three different pharmacies in the city. The positive control drug was selected from ribavirin granules and purchased from Sichuan Baide Pharmaceutical Co., Ltd. with batch number 170501.

Virus

Influenza A virus mouse lung adaptor strain A/FM1/47 (H1N1), purchased from the Institute of Virology, Chinese Academy of Preventive Medicine, and FM1M9E2M4E3M2E4M2E3 after passage through rat lung and chicken embryos.

Chicken Embryo

The 9-day-old Nickel white chicken embryo, SPF grade, was purchased from Liaoning Yikang Biological Products Factory.

1% Chicken Red Blood Cell Suspension

Choose healthy cock, collect blood after anticoagulant treatment with albis solution, centrifuge with 1500r/min for 3 times, discard the supernatant, and use sterile saline to configure 1% suspension at 4 °C. Save spare.

Experimental Instruments

Benchtop Pressure Steam Sterilizer (Shenyang Shengda Bioelectronics Co., Ltd.); Low Temperature High Speed Centrifuge (Heraeus, Germany, Model: Biofuge 28RS); Class II Biosafety Cabinet (Baker, USA, Model: SG403TXCE); Electrothermal Constant Temperature Incubator (Shanghai Yuejin Medical Instrument Factory): AS3120 electronic ultrasound system.

METHODS AND RESULTS

Preparation of Experimental Drugs

Preparation of Mianma Guanzhong Water Extract

Weigh accurately 100g cotton horses, placed in a round bottom flask, add water and reflux for 2 times, add 8 times the amount of water each time, each extraction time is 1 hour, after filtration, take the filtrate, concentrate to 100ml, A solution having a concentration of 1 g/ml was prepared for use.

Preparation of Mianma Guanzhong Ether Extract

Precisely weighed 100g Mianma Guanzhong, placed in a round bottom flask, add diethyl ether and reflux to extract 2 times, add 6 times of water each time, each extraction time is 1 hour, after filtration, the filtrate is evaporated to dry ether, residue After adding 8% of Tween-80 to dissolve, 100 ml of a solution having a concentration of 1 g/ml was prepared.

Preparation of Mianma Guanzhong Ethanol Extract

Precisely weighed 100g Mianma Guanzhong, placed in a round bottom flask, added with 70% ethanol and heated to reflux for 2 times, each time adding 6 times the amount of water, each extraction time is 1 hour, after filtration, the filtrate is evaporated to dry ethanol After adding 8% Tween-80 to the residue, 100 ml of a solution having a concentration of 1 g/ml was prepared.

Preparation of Positive Control Drug Solution

An appropriate amount of ribavirin particles was weighed, dissolved in water, and a solution having a concentration of 50 mg/ml was prepared.

Determination of the Maximum Non-Toxic Dose of Chicken Embryos by Medicinal Extracts and Positive Control Drugs

The drug stock prepared above was diluted twice in series with physiological saline containing 10% penicillin G and streptomycin mixed reagent, 0.2 ml each time, and inoculated separately on the pre-configured, labeled chicken embryo, different the concentration of the drug solution was inoculated with 8 chicken embryos, and a saline control group was also set. The inoculated chicken embryos were placed in a 34 ° C incubator and incubated continuously for 72 hours. The survival of the chicken embryos was observed and recorded every 12 hours. The chicken embryos that died within 24 hours were not counted as drug toxic effects. The results showed that the maximum non-toxic dose dilution ratio of Mianma Guanzhong water extract was 1:1, the maximum non-toxic dose was 1000mg/ml; the maximum non-toxic dose dilution ratio of Mianma Guanzhong Ether Extract was 1:2. The maximum non-toxic dose was 500mg/ml; the maximum non-toxic dose dilution of Mianma Guanzhong ethanol extract was 1:1, the maximum non-toxic dose was 1000mg/ml; the maximum non-toxic dose dilution factor of ribavirin group was 1:1, the maximum non-toxic dose is 50 mg/ml.

Preventive Effects of Herbal Extracts and Positive Control Drugs on Chicken Embryos Infected with Influenza a Virus

The drug and the volume of the original solution were diluted to the maximum non-coagulation dose, and the maximum non-coagulation dose was serially diluted to 1:32, and 0.1 mL per embryo was inoculated separately, and 4 chicken embryos in each group were continuously incubated at 37 ° C for 2 h. The saline group and the virus control group were set up, and then 0.1 mL of 100EID50 virus suspension was inoculated respectively, and the physiological saline control group was injected with 0.1% of 0.9% physiological saline, and stored in an incubator at 37 ° C for 48 hours, then at -20 ° C. After freezing in the refrigerator for 1 h, the chicken embryo allantois fluid was extracted and the blood coagulation titer was measured. The results showed that the preventive effects of the three extracts of Mianma Guanzhong were from water to extract, ether extract and ethanol extract.

Therapeutic Effect of Medicinal Extracts and Positive Control Drugs on Chicken Embryos Infected with Influenza a Virus

The drug and solvent stocks were diluted to the maximum non-coagulation dose, and diluted to 1:32 continuously. Each embryo was inoculated with 0.1 mL of 100EID50 virus suspension. Each group was inoculated with 4 chicken embryos, and the saline group and the virus control group were set. Incubate at 37 ° C for 2 h, the control group was injected with 0.9% of normal saline 0.1 mL, then 0.1 mL of each drug was injected separately, placed in a 37 ° C incubator for 48 h, and then frozen in a refrigerator at -20 ° C for 1 h, and the chicken was drawn. The embryonic allantois fluid was measured for hemagglutination titer. The results showed that the therapeutic effects of the three extracts of Mianma Guanzhong were ethanol extract, water extract and ether extract from strong to weak.

CONCLUSION

At present, the application of antibiotics is very extensive in clinical practice, which makes the harm of viral diseases to human health gradually increase, and is the most important one in infectious diseases [5-6]. Viral infectious diseases are the most common disease in the world at this stage [7]. The therapeutic effect of traditional Chinese medicine on viral influenza has received increasing attention [8-10]. In this study, the effects of water extract, ether extract and ethanol extract of Mianma Guanzhong on the chicken embryo anti-influenza A virus FM1 strain were studied by experiments, and it was found that Mianma Guanzhong 3 The effect of the extract against the influenza A virus FM1 strain was significantly different from that of the virus control group; the preventive effects of the three extracts of Mianma Guanzhong were from water to extract, ether extract and ethanol extract; The therapeutic effects of the three extracts of Ma Guanzhong are ethanol extract, water extract and ether extract from strong to weak. This result is similar to the results reported in the related literature ^[11-15], which confirms that the different extracts of Mianma Guanzhong have a significant effect against the influenza A virus FM1 strain, which is worthy of attention and promotion.

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