3 . Results of VAS : Compared with before treatment , the VAS score decreased significantly after 14 days of treatment and after the whole treatment course in all the three groups (P＜0.01) . By the reduced scores of VAS after 14 days of treatment and after the whole treatment course from higher to lower . The three groups were sorted as : group C , group A and group B . There was no significant difference between group C and group A(P＞0.05) . The difference was significant between group C and group B (P＜0.01) , as well as between group A and group B (P＜0.05).

4 . Results of FCA : Compared with before treatment , the FCA score increased significantly both after 14 days of treatment and after the whole treatment course in all the three groups (P＜0.01) . By the increaed scores of FCA after 14days of treatment and after the whole treatment course from higher to lower, the three groups were sorted as : group C , group A and group B . There was no significant difference between group C and group A(P＞0.05) . the difference was significant between group C and group B , as well as between group A and group B (P＜0.01).

5 . Results of the comprehensive effect evaluatiaon : Apparent rate of the three groups was : group A 26.7%, group B 3.3% and group C 36.7%.Total effective rate of the three groups was : group A90.0%, group B 83.3% and group C 96.7%. By the effect of therapy from better to worse three groups were sorted as:group C ,group A and group B. There was no significant difference between groupC and group A(P＞0.05),and the difference was significant between group C and group B (P＜0.01),as well as between group A and group B (P＜0.05).

Conclusion Acupuncture , rehabilition training and acpuncture combined with rehabilition training can all improve the neurological function, upper limb motor function and comprehensive function and release pain pf patients with shoulder-hand syndrome after stroke.Acupuncture combined with rehabilition training is significantly more effective than simple rehabilition training.Although the difference was not significant,acpuncture combined with rehabilition training improved the condition better than simple acpuncture,and the difference was more obvious as the treatment course extended.There is a synergetic effect of acupuncture and rehabilition training in the therapy of SHS after stroke.

Key words storke: shoulder-hand syndrome; accpuncture;rehabilition training

PREPARATION OF SOLID SELF-EMULSIFYING SYSTEM FOR POORLY WATER-SOLUBLE DRUG SOPHORAFLAVANONE G

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AbstractSFG hasso many pharmacological activitiesthat SFG may become a promising new molecular entity (NME), but its waterinsolubleaffectsitsapplication.Bythisexperiment,SFGwasmadeintoanewsolidself-emulsifyingsystem(S-SMEDDS) toincreasethedissolutionandabsorptionofSFGandevaluatethebioavailabilityinSprague–Dawley(SD)ratsbyoralgavage. Thispaperprovidesamethodtoimproveitssolubilityinordertoprovideareferencefortheresearchandapplicationof SFG.

Key words: Sophoraflavanone G; self-emulsifying system ;bioavailability

Introduction Sophoraflavanone G(SFG) is for leguminous plants ofSophora flavescens flavonoids.Studies have shown that flavescens flavonoids havea good antibacterial activity[1], anti-inflammatory[2], anti-malarial and the role of enzymes[3]. However, the hydrophobicity of the isopentenyl compound may affect its bioavailability in vivo to a certain extent.Self-emulsifying drug delivery system (SMEDDS) is a solid or liquid formulation that contains an oil phase, an emulsifier, and a co-emulsifier, and is a lipid delivery system [4].Therefore ,in this experiment, SFG was made into solid self-emulsifying system to increase both the dissolution and the absorption ,while improving its bioavailability.

Materials and methods SFG was synthetic by the Heilongjiang University of Traditional Chinese Medicine (China). Methanol (chromatographic purity, Fisher Co., Ltd., USA)All other chemicals and solvents used were of analytical reagent grade.Healthy male SD rats, weighing 240–260g,were provided by Experimental Animal Center of Heilongjiang University of Chinese Medicine.

UPLC analysis of SFG The UPLC method was used for the determination of SFG in the solubility test, dissolution test, and pharmacokinetic studyin vivo/vitro. The mobile phase was methanol /water at the ratio of 4:1. The wavelength of the UV detector, flow rate, and injection volume were set at 294 nm, 0.2mL/min and 3μL, respectively.

Formulation and preparation of Sophoraflavanone G S-SMEDDS

Several formulations of SMEDDS were prepared containing a fixed proportion of SFG (20.0 mg/g) dissolved in a mixture of vehicles composed of cremophor RH40(emulsifier), PEG400 (co-emulsifier) and Ethyl Oleate as oil phase .These components were accurately weighed and mixed using a magnetic stirrer until a clear solution was obtained. All of the liquid formulations were stored in air-tight glass containers at -4℃ until required for use as below .

In vitro releasestudy and In vivo pharmacokinetic study

The optimum formulation SFG and SFG-S-SMEDDS were weighed, and 900 mL of distilled water was used as the dissolution medium at a temperature of (37±0.5)℃, and the speed was50rpm/min, respectively, at 5,10,20,30,45,60,120 min when the sample solution,determination of SFG content, calculate the cumulative dissolution.

Twelve SD rats were divided into two groups,which wereorally administrated optimized SFG S-SMEDDS

and SFG tablets and sonicated for10 min. The obtained plasma was stored at -4℃ untilanalyzed.

Results and Conclusion The UPLC method ,which linear relationship was good and stable,was used to establish aquantitative analysis method of SFG.The results showed that the dissolution rate of SFG-S-SMEDDS was 50% in the first 10 min and 80% in the 30 min, which was superior to SFG. In vitro experiments showed that SFG-S-SMEDDS could improve the dissolution rate.After oral administration, the SFG self-microemulsion T1/2z was 3.200 h, and the Tmax was 0.792 h , AUC0 → ∞ was 652.977μg×h/mL, and MRT0 → ∞ was 11.278h. Above all , the relative bioavailability of SFG in rats was about 343.84%, which suggested that SFG-S-SMEDDS could improve the bioavailability effectively.As a result,Sophoraflavanone G have a good way to service human-beings.

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EFFICACY OF ACUPUNCTURE-REHABILITATION THERAPY IN PROMOTING ANGIOGENESIS AND REDUCING INFARCT VOLUME AFTER FOCAL CEREBRAL ISCHEMIA IN RAT BY A MECHANISM OF UP-REGULATING CIAP1 IN MICROVESSELS

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Objective: In China, acupuncture-rehabilitation therapy has been widely used in stroke patients with various types of dysfunction treatment, clinical efficacy is significant, its safety and efficacy are confirmed by a large number of clinical and animal studies. In this study, we will explore the effect of acupuncture-rehabilitation therapy on neurological function and Angiogenesis in ischemic penumbra after cerebral ischemic injury in rats, and to explore whether the neuroprotective effect of acupuncture-rehabilitation therapy is related to the up-regulation of cellular inhibitor of apoptosis protein 1 (cIAP1) expression in microvessels.

Methods:90male SPF-level Sprague-Dawleyrats were divided into five groups, namelysham group, model group, acupuncture group, rehabilitation group and acupuncture-rehabilitation group, and 18 in each group. Their middle cerebral arteries were occluded except those of sham group. The sham and model groups accepted no treatment, while the acupuncture group accepted cluster needling of scalp acupuncture, rehabilitation group accepted treadmill training, and the acupuncture-rehabilitation group accepted combined cluster needling of scalp acupuncture and treadmill training. They were assessed with modified Neurologic Severity Score (mNSS) 1day and 14 days after operation; the volume of cerebral infarction was measured by TTC staining; Immunofluorescence double labeling method was used to observe the expression of cIAP1 and CD31 and co-localization of cIAP1 in microvessels (labeled with CD31, which is a microvessel marker); Western blotting was used to detect the expression of cIAP1 and VEGF in peripheral cortex of cerebral infarction at 14 days after operation, respectively.

Results:At 1 day after operation, compared with the sham operation group, the mNSSwas significantly increased($P<0.05$) in the model group and each treatment group, while the difference between the groups was not significant ($P>0.05$). At 14 days after operation, compared with the sham group, the mNSS was significantly increased($P<0.05$) in the model group; the cerebral infarct volume was significantly increased($P<0.05$); the mean optical intensity (MOI) of fluorescence expression of cIAP1 decreased($P<0.05$), while CD31 increased ($P<0.05$); and the expression of cIAP1 protein down-regulated($P<0.05$), while VEGF protein up-regulated($P<0.05$); Compared with the model group, the mNSS was reduced and the cerebral infarction volume was decreased($P<0.05$), the MOI of fluorescence expression of cIAP1 and CD31increased ($P<0.05$), and the expression of cIAP1 and VEGF protein up-regulated($P<0.05$) in each treatment group, and the acupuncture-rehabilitation group is most obvious ($P<0.05$) compared to the acupuncture group and rehabilitation group.

Conclusion: acupuncture-rehabilitation therapy can reduce the neurological deficit, reduce the volume of cerebral infarction and play a neuroprotective effect after cerebral ischemia in rats, which is superior to simple acupuncture or rehabilitation therapy. The potential mechanism of action is related to the up-regulation of cIAP1 expression in microvessles, and promoting angiogenesisin peripheral cortex of cerebral infarction.