

# Effect of *xingnaojing* injection and *angong niuhuang wan* on neurological functional defect in acute stage of cerebral infarction<sup>★</sup>

Lei Yi-qi, Hong Shao-yong, Shi Dong-kui

Department of Neurology, Guangdong General Hospital of Chinese People's Armed Police Force, Guangzhou 510507, Guangdong Province, China

**Correspondence to:** Lei Yi-qi<sup>★</sup>, Studying for master degree, Attending physician, Department of Neurology, Guangdong General Hospital of Chinese People's Armed Police Force, Guangzhou 510507, Guangdong Province, China lei-yiqi@tom.com

**Received:** 2004-08-12 **Accepted:** 2004-11-30 (17/SX)

## Abstract

**BACKGROUND:** It is discovered in clinical practice that the principles of regaining consciousness, opening orifice combining with benefiting *qi* and nourishing *yin* for the treatment of both root causes and symptoms can improve remarkably neurological functional recovery in acute stage of cerebral infarction.

**OBJECTIVE:** To observe the effects of *xingnaojing* injection and *angong niuhuang wan* on neurological functional disturbance in acute stage of cerebral infarction.

**DESIGN:** Randomized controlled study based on patients.

**SETTING:** Guangdong General Hospital of Chinese People's Armed Police Force.

**PARTICIPANTS:** Inpatients with cerebral infarction in Department of Neurology of Guangdong General Hospital, Chinese People's Armed Police Force from September 1998 to September 2003.

**METHODS:** Totally 120 cases in the acute stage of cerebral infarction were randomized into *xingnaojing* injection group (XNJ), *angong niuhuang wan* (ANW) group and *danshen fen* (DSF) group, 40 cases in each group. Fourteen days after treatment, the therapeutic effects and neurological functional improvement were observed.

**MEAN OUTCOME MEASURES:** Comparison of the improvement in neurological function in groups was carried on in the experiment.

**RESULTS:** The total effective rates were 95%, 90% and 65% in *xingnaojing* injection group, *angong niuhuang wan* group and *danshen fen* group successively. The paralysis of limb was recovered more markedly in *xingnaojing* injection group and *angong niuhuang wan* group compared with the control. The therapeutic effect was significant in *xingnaojing* injection group.

**CONCLUSION:** Both *xingnaojing* injection group and *angong niuhuang wan* group treat cerebral infarction of acute stage with better therapeutic effects, and the former provides rather remarkable effect on the recovery of neurological functional defect.

Lei YQ, Hong SY, Shi DK. Effect of *xingnaojing* injection and *angong niuhuang wan* on neurological functional defect in acute stage of cerebral infarction. *Zhongguo Linchuang Kangfu* 2005; 9(13): 246-71 (China) [www.zgckf.com]

## INTRODUCTION

*Xingnaojing* injection is the water-infusion injection modified and prepared on the basis of ancient formula, *angong niuhuang wan*, and is the necessity of Chinese patent medicine for the emergency in Chinese medicine hospitals appointed by State Administration of Traditional Chinese Medicine. In order to probe into the therapeutic effects of *xingnaojing* injection and *angong niuhuang wan* for the acute cerebral infarction (ACI), the writer has used *xingnaojing* injection and *angong niuhuang wan* to treat the disease respectively so as to improve the neurological functional recovery in the patients with ACI.

## SUBJECTS AND METHODS

### Subjects

Inpatients with cerebral infarction in Department of Neurology of Guangdong General Hospital, Chinese People's Armed Police Force from September 1998 to September 2003 were employed in the

study. Inclusion criteria: ① Conforming to the diagnostic criteria approved in 95' the 4<sup>th</sup> National Academic Meeting on Cerebral Vascular Disease<sup>[1]</sup>. ② < 48 hours from the onset to hospitalization verified with brain CT scan exam. Exclusion criteria: The patients were not included if they presented severe disablement or complicating with cerebral hemorrhage and severe dysfunction of liver and kidney. There were 120 cases conforming to the criteria all together, randomized into *xingnaojing* injection group, *angong niuhuang wan* group and *danshen fen* group, and 40 cases in each group.

### Methods

The treatment started right after hospitalization. In *xingnaojing* injection group, the intravenous injection was administrated with *xingnaojing* injection 20 mL + glucose NaCl injection 250 mL, once a day. In *angong niuhuang wan* group, one bolus was administrated each time, once a day. It was prepared into homogenate for oral application or nasal feeding. In *danshen fen* group, the intravenous injection was administrated with *danshen fen* 0.8 g + 50 g/L glucose NaCl injection 250 mL, once a day. Fourteen days made a session of treatment. The basic treatment was same in every group, for which, mannitol, drugs for lowering blood pressure and blood sugar and antibiotics were applicable.

Functional evaluation: According to reference[2]: Mild degree: 0-15 scores; Moderate degree: 16-30 scores and Severe degree: 31-45 scores. The evaluation was carried on the 5<sup>th</sup> day after treatment and at the end of treatment

Main outcome measures: It was to observe consciousness state and alternation of limb myodynamia after treatment, the results of blood routine, urine routine, liver and kidney function, blood sugar and electrocardiograph (ECG) before and after treatment in each group.

Statistical analysis: Statistical Teaching & Research Room of Guangzhou Medical College carried on the analysis on data with SPSS 10.0 software.  $\chi^2$  test was applied for the analysis on results.

## RESULTS

### Quantitative analysis of participants

Totally 120 cases were included. Due to infection, 1 case in *angong niuhuang wan* group and 2 cases in *danshen fen* group were died. Therefore, there were 117 cases entering the analysis on results.

### Comparison of baseline among the three groups (Table 1)

Table 1 Comparison of baseline among the three groups (n = 40)

Group	Sex (n)		Age (yr)	Grades of sickness (n)			Severity of neurological function defect (n)	
	Male	Female		Mild	Moderate	Severe	Conscious disturbance	Complete paralysis
<i>Xingnaojing</i> injection	21	19	40-85	10	14	16	13	27
<i>Angong niuhuang wan</i>	23	17	43-82	9	15	16	13	27
<i>Danshen fen</i>	24	16	39-81	13	12	15	15	25

P > 0.05

### Flow chart of topic progression (Figure 1)

### Comparison of therapeutic effects

Concerning to the recovery of conscious disturbance and limb myo-

dynamia, the therapeutic effect in *angong niuhuang wan* group was obviously better than *danshen fen* group ( $P < 0.01$ ); that in *xingnaojing* injection group was obviously better than *angong niuhuang wan* group ( $P < 0.05$ ). Table 2 presents the comparison of therapeutic effects in every group and Table 3 presents time of pharmaceutical effect, cases of patients and percentage in every group after treatment.

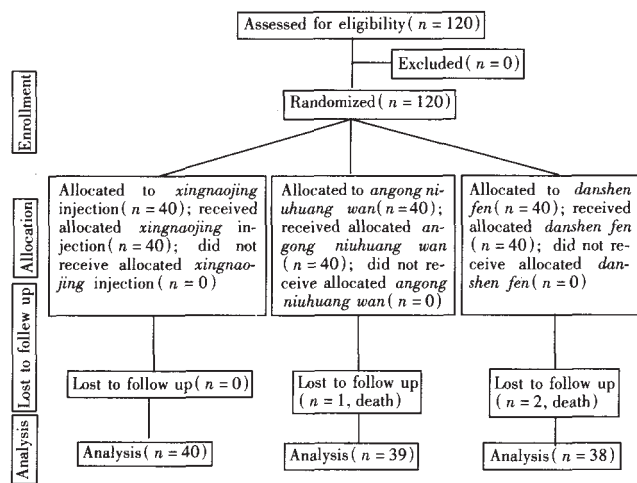


Figure 1 Flow chart of topic progression

Table 2 Comparison of therapeutic effects in every group (n)

Group	Basically cured	Significantly improved	Improved	No change	Deteriorated	Death	Total effective rate (%)
<i>Xingnaojing</i> injection	13	19	6	1	1	0	95 <sup>a</sup>
<i>Angong niuhuang wan</i>	12	15	9	2	1	1	90
<i>Danshen fen</i>	7	11	8	10	2	2	65 <sup>a</sup>

<sup>a</sup> $\chi^2 = 4.88, 6.83, P < 0.05$ , vs *angong niuhuang wan* group

Table 3 Time of pharmaceutical effect, cases of patients and percentage in every group after treatment (n/%)

Time	<i>Xingnaojing</i> injection	<i>Angong niuhuang wan</i>	<i>Danshen fen</i>
Be clear on the 5 <sup>th</sup> day	9/69	7/54	2/20
Recover over II grade of myodynamia on the 5 <sup>th</sup> day	11/41	10/37	5/20
Be clear at the end of treatment	12/92	9/69	5/50
Recover over II grade at the end of treatment	25/93	21/78	14/56

#### Adverse events and side effects

On the 4<sup>th</sup> day of treatment, scattering rashes were apparent in 2 cases of *xingnaojing* injection, which disappeared with continuous medication. No marked change presented in blood routine, urine routine, liver and kidney function, blood pressure, blood sugar and ECG in every group before and after treatment.

#### DISCUSSION

It was indicated in this research that the effect of *xingnaojing* injection or *angong niuhuang wan* on improving neurological functional disturbance in patients with acute cerebral infarction was remarkably better than compound *danshen* injection. Both *xingnaojing* injection and *angong niuhuang wan* act on well improvement of conscious disturbance. There is no obvious difference for *xingnaojing* injection and *angong niuhuang wan* in the therapeutic effect on recovering limb paralysis. *Xingnaojing* injection is the water-injection modified and prepared on the basis of *angong niuhuang wan*. By intravenous injection, the medicine penetrates blood-cerebral barrier and acts on central neural system directly. It functions opening orifice, regaining consciousness and easing convulsion. It improves cerebral edema, enhances the tolerance of cerebral cell to

oxygen deficiency, reduces overload of calcium and intracranial pressure and promotes effectively the neurological function in patients with cerebral infarction. The mechanism of those is related to the adjustment of the functions of activated hypothalamus-pituitary-adrenal cortex axis<sup>[3,4]</sup>. It is indicated in the researches *in vivo* that during acute cerebral ischemia, the strongly irritated hypothalamus-pituitary-adrenal cortex axis mainly damages cerebral cell in glucose absorption and metabolism and produces neural toxicity to hormones<sup>[5]</sup>. It is clarified in clinical research that cortisol aggravates cognitive disturbance of patients with cerebral apoplexy. The activation of hypothalamus-pituitary-adrenal cortex axis is the main substantial foundation of the aggravated ischemic neuron injury. *Xingnaojing* injection is administrated to actively interfere such link so as to alleviate the stress of acute cerebral ischemia and protect ischemic neuron. The therapeutic effects of *xingnaojing* injection is better than *angong niuhuang wan* 2 weeks later, which is probably due to that: it could be difficult in absorbing *angong niuhuang wan* completely by oral application, in addition, after cerebral infarction, gastric intestinal function is declined, even vomiting presents, which will even more disadvantage to the medical absorption. Hence, it is important to renovate pharmaceutical forms so as to improve clinical therapeutic effects.

#### REFERENCES

- 1 Chinese Society of Neurology. The diagnosis essence of categories of cerebrovascular diseases. *Zhonghua Shenjingke Zazhi* (中华神经科杂志) 1996; 29(6): 379-80
- 2 Chinese Society of Neurology. The standards of evaluation on clinical neurological defect of stroke patients. *Zhonghua Shenjingke Zazhi* (中华神经科杂志) 1996; 29(6): 381-3
- 3 Zhou YW, Wang YW, Cheng W, et al. Effect of *xingnaojing* in improving the cognitive dysfunction of patients with cerebral infarction at acute phase. *Zhongguo Linchuang Kangfu* (中国临床康复) 2004; 8(8): 6137-9
- 4 Yan JC, Jiang XJ, Zhang XL, et al. Effect of *xingnaojing* injection on tumor necrosis factor alpha in patients with consciousness disturbance combined with fever after cerebral hemorrhage. *Zhongguo Linchuang Kangfu* (中国临床康复) 2004; 8(9): 3828-30
- 5 Horner HC, Packan DR, Sapolsky RM. Glucocorticoids inhibit glucose transport in cultured hippocampal neurons and glia. *Neuroendocrinology* 1990; 52(1): 57-6

### 醒脑静注射液与安宫牛黄丸对脑梗死急性期患者神经功能缺损程度的影响\*

雷奕祺, 洪少勇, 史东葵 (武装警察广东总队医院神经内科, 广东省广州市 510507)

通讯作者: 雷奕祺, 男, 1969年生, 广东省广宁县人, 汉族, 主治医师, 南方医科大学 (原第一军医大学) 在读硕士, 主要从事神经内科脑血管病临床工作。

#### 摘要

背景: 临床实际中, 发现以醒脑开窍并益气养阴为治则, 标本兼治可明显改善脑梗死急性期患者的神经功能恢复情况。

目的: 观察醒脑静注射液与安宫牛黄丸对脑梗死急性期患者神经功能障碍的影响。

设计: 以患者为观察对象 随机对照。

单位: 中国人民武装警察部队广东总队医院。

对象: 研究对象为武警广东总队医院神经内科 1998-09/2003-09 住院的脑梗死患者。

方法: 将脑梗死急性期患者 120 例随机分为醒脑静注射液组和安宫牛黄丸组及丹参粉组, 各 40 例, 治疗 14 d 后分别观察患者的疗效、神经功能改善情况。

主要观察指标: 各组患者神经功能改善情况比较。

结果: 醒脑静注射液组、安宫牛黄丸组、丹参粉组总有效率分别为 95%、90%、65%, 醒脑静注射液组、安宫牛黄丸组肢体瘫痪的恢复明显优于对照组, 醒脑静注射液组疗效显著。

结论: 醒脑静注射液与安宫牛黄丸对脑梗死急性期有较好的治疗作用, 而且前者对神经功能缺损的恢复效果更为明显。

关键词: 脑梗塞; 安宫牛黄丸; 治疗结果

中图分类号: R743 文献标识码: A 文章编号: 1671-5926(2005)13-0246-02  
雷奕祺, 洪少勇, 史东葵. 醒脑静注射液与安宫牛黄丸对脑梗死急性期患者神经功能缺损程度的影响[J]. 中国临床康复, 2005, 9(13): 246-7

[www.zglckf.com]

(Edited by Wang F/Ji H/Wang L)