A Clinical Study on the Effect of Yinxing Damo (银杏达莫) Combined with Betahistine Hydrochloride Injection on Vertebral Basilar Artery Ischemic Vertigo

DENG Yan (邓 彦), ZHU Hai-qing (朱海清), DENG Guo-bao (邓国宝), and TAN Cheng (谭 诚)

ABSTRACT **Objective**: To evaluate the therapeutic efficacy of Yinxing Damo (银杏达莫, YXDM) combined with Betahistine Hydrochloride Injection (BHI) on vertebra basilar artery ischemic vertigo (VBIV). **Methods**: Ninety patients with VBIV were randomly divided into two groups; 45 patients (the treated group) were treated with YXDM and BHI intravenous dripping, once a day for 14 days. Another 45 patients (control group) were treated with Xueshuantong (血栓通) and BHI intravenous dripping, once daily for 14 days. The clinical syndromes and the index of the transcranial Doppler (TCD) and hemorheology were observed. **Results**: The total effective rate was 100% in the treated group, which was better than that in the control group 90.5%, ($P<0.05$). The indexes of TCD and hemorheology in the treated group were obviously improved after treatment, ($P<0.01$). **Conclusion**: YXDM combined with BHT injection had better effect in treating patients with VBIV is an ideal drug for VBIV.

KEY WORDS Yinxing Damo, Betahistine hydrochloride injection, vertebra basilar artery ischemia, vertigo

Vertebra basilar artery ischemia induced vertigo is a common ailment, which might be caused by such factors as atherosclerosis, increased blood viscosity, slow-down blood flow, blood vessel spasm, cervical spondylitis, cervical arterial system blood stealing etc[1]. Its clinical manifestation was vertigo, rotating sensation, accompanied with such symptoms as tinnitus, chest depression, nausea, vomiting and palpitation etc. Its highest incidence takes place among the middle and old aged persons, particularly female ones. In treatment, multiple medicaments are used, there are many species used, and many opinions about their efficacy held. We selected traditional and western compound preparation Ginkgo Biloba (Yinxing Damo injection, 银杏达莫, YXDM) combined with Betahistine hydrochloride injection (BHI) in treating vertebral basilar artery ischemia induced vertigo patients who visited the hospital from January 2002 to August 2004, and the results were observed clinically, and the reports reported as follows.

METHODS

Inclusion Criteria

Ours conformed to vertebra basilar artery ischemia syndrome[2]; (1) With typical vertigo symptom: dizziness, the feeling of all objects in view rotating, accompanied with tinnitus, chest oppression, nausea, vomiting, palpitation, etc; (2) Skull CT or MRI monitor showed no abnormality or with cerebral atrophy and cerebral white matter porosis, transcranial Doppler (TCD) suggesting vertebra basilar artery ischemia; (3) Age 18—90 years old; (4) During enrolment, anti-coagulant, anti-platelet aggregate and vasodilator were forbidden.

Exclusion Criteria

(1) Excluded were patients with vertigo caused by functional failure due to other serious disorders such as Meniere's disease, cerebral infarction, cerebral hemorrhage, brain tumor, and anemia, drug intoxication etc.; (2) Age under 18 or over 90 years. (3) Pregnant or lactated women; (4) Drug sensitive and asthmatic patients; (5) Those complicated with cardiovascular, liver, renal and hemopoietic system etc. or other serious primary disorders.

Clinical Data

All the patients came from the acute inpatients of our department from January 2002 to August 2004, altogether 90 cases conformed to above-mentioned criteria for vertebral basilar ischemia syndrome; they were randomly divided into treated ($n=45$) and control ($n=45$) groups, and in the treated group were male 20 and female 25 cases; ages 25—87 years, 62±18 years on average; complicated with hypertension 42 cases, diabetic mellitus (DM) 13 cases, cervical spondylitis 29 cases, hyperlipidemia 25 cases. In the control group were male 23 and female 22 cases; ages 35—79 years, 64±17 years on average; complicated with hypertension 33 cases, DM 19 cases, cervical spondylitis 44 cases, hyperlipidemia 14 cases. Both groups'

Department of Neurology, the First People's Hospital of Shaoguan, Guangdong (512000)
Correspondence to: DENG Yan, Tel: 13509059699; E-mail: denyan-94@163.com

Chin J Integr Med 2005 Sep;11(3) : 229—231

blood, urine and feces routine, liver and renal function test, laboratory findings and the general data for comparison, was insignificantly different, and so they were comparable.

Study Methods

(1) Treated group: Yinxing Damo injection (Guizhou Yibai Pharmaceutical Co., Ltd., produced) 20 ml was added into 0.9% NaCl injection or in 5% glucose injection 250 ml intravenous dripping, and then, Betahistine hydrochloride injection (BHI) was used (Anhui Guoyao Group Guorui Pharmaceutical Co., Ltd., produced) with 20 mg added into 0.9% NaCl injection or 5% glucose injection 250 ml intravenous dripping, all once daily for 14 days; (2) Control group: Xueshuantong (血栓通, XST) injection(active principle was Notoginseng saponin, Livson Group Guangdong Limin Pharmaceutical Factory produced) 560 mg was added into 0.9 NaCl injection or 5% glucose injection 250 ml, and then BHI 20 ml was added into 0.9% NaCl injection or 5% glucose injection 250 ml intravenous dripping, once a day for 14 days.

Observed Items

Everyday the changes of patient's vertigo and the vanishing time of symptoms were recorded before and after the treatment, transcranial Doppler (TCD) of everyone was monitored for once and so was the hemorheologic index. For TCD apparatus, Germany DWL Company's Multi-Dopl was used before and after treatment, to examine three chief branches of vertebra basilar artery system once a day: blood flow velocity of left (L) lateral vertebrae artery, right (R) lateral vertebrae artery and basal (B) artery; for hemorheologic monitoring hemorheologic device made in Beijing was used before and after treatment, and hemorheology was determined once before and after treatment for each patient.

Efficacy Assessment Criteria

Assessment was done according to "Basis of Clinical Disease Diagnosis and Efficacy Criteria" and also acording to the TCD, hemorheologic parameters assessment after treatment. Cured: subjective symptoms disappeared, TCD, hemorheologic parameters got basically normal; Markedly effective: subjective symptoms obviously turned for the better, TCD and hemorheologic parameters were markedly improved; Effective: subjective symptoms got improved, TCD and hemorheologic parameters also improved; Ineffective: subjective symptoms got no improvement, TCD and hemorheologic parameters no improvement either.

Statistical Analysis

For efficacy evaluation *Ridit* analysis was adopted, for measurement data t test was used, and for enumeration data χ^2 analysis was adopted.

RESULTS

Out of the enrolled 90 cases, the 45 cases in the YXDM group (treated group) accomplished the treatment, and 42 in the XST group (control group) also accomplished the treatment, but 3 cases in this group suffered from headache and asked to drop out.

See Table 1 for comparison of the clinical efficacy between the two groups. After treatment of the two groups, the *Ridit* analysis showed to be $P<0.05$, indicating that the efficacy in the treated group is better than that in the control group.

See Table 2 for the determined results before and after treatment in vertebra basilar artery mean blood blow velocity. Comparison between vertebra basilar artery mean blood flow velocity in the treated group before and after treatment showed marked difference, suggesting that YXDM injection and Betahistine injection could obviously improve vertebra basilar artery blood flow mean velocity, and that the efficacy in the treated group was better than that in the control group.

See Table 3 for the determined result in hemorheologic parameters before and after treatment. After treatment the hemorheologic parameters in both groups got improved, suggesting that the drugs used for both groups could significantly improve the hemorheologic function.

Table 1. Comparison between the Clinical Efficacy of the Two Groups [Case (%)]

Group	Case	Basic Cured	Markedly Effective	Effective	Ineffective	Total Effective Rate	*R* Value	χ^2
Treated	45	28(62.2)	16(35.6)	1(2.2)	0(0)	100%*	0.425	
Control	42	18(42.9)	10(23.8)	10(23.8)	4(9.5)	90.5%	0.579	6.14

Note: * $P<0.05$, compared with the control group

Table 2. The Change of Two Groups before and after Treatment in Vertebra Basilar Artery Blood Flow Mean Velocity ($\bar{x}\pm s$)

Group	Case	Time	Left Vert Art (cm/s)	t	Right Vert Art (cm/s)	t	Bas Art (cm/s)	t
Treated	45	BT	35.13±4.81		33.92±6.60		36.60±7.61	
		AT	39.21±7.21**	3.16	38.76±9.60**	2.79	42.80±11.59**	2.64
Control	42	BT	35.15±4.15		35.66±4.85		40.34±5.21	
		AT	37.77±5.20*	2.56	37.89±5.17*	2.04	43.15±5.58*	2.04

Notes: * $P<0.05$, ** $P<0.01$, compared with the same group before treatment; BT: before treatment, AT: after treatment

Table 3. Comparison between Hemorheological Parameters before and after Treatment in Two Groups ($\bar{x}\pm s$)

Group	Case	Time	Whole Blood Viscosity (mpa/s)	t	Plasma Viscosity (mpa/s)	t	Ht (%)	t	Fibrino (g/L)	t
Treated	45	BT	5.37±0.34	5.16	1.82±0.67	3.58	48.0±3.2	15.7	4.97±0.22	22.8
		AT	5.06±0.21*		1.41±0.48*		37.0±3.4*		3.86±0.13*	
Control	42	BT	5.29±0.24	3.80	1.89±0.61	2.84	48.5±2.9	8.07	4.73±0.35	8.28
		AT	5.10±0.18*		1.72±0.57*		44.3±1.8*		4.15±0.29*	

Notes: * $P<0.01$, compared with the same group before treatment; BT: before treatment, AT: after treatment

DISCUSSION

Vertebral basilar artery ischemic vertigo is held by Western medicine (WM) to be induced by body balance functional disturbance of cerebellum and vestibulum[2], but traditional Chinese medicine (TCM) holds that it goes to the category of wind vertigo, i. e. the evil of wind, phlegm, stasis and deficiency was the main pathogenesis of vertigo, which is manifested in a series of syndromes: sudden vertigo, dizziness, vomiting, blurred vision, dysphagia, dysarthrosis, etc., with vertigo and vomiting as the most commonly encountered ones, and resulting in clinical emergency cases. Its treatment usually adopts combination of TCM and WM. But there have been so many kinds of drugs already used, and here we selected the most favored therapy of YXDM injection combined with Betahistine injection. For control we used the most common XST injection and Betahistine injection to observe its efficacy. YXDM injection was a Ginkgo biloba leaf extract compound preparation, and its active principle was Ginkgo biloba flavonoid, terpentine lactone, Ginkgo lactone, dipyidamole, etc. These ingredients could improve hemorheologic status[3], inhibit platelet aggregation, antagonize peroxide, scavenge free radicals, relieve ischemia and hypoxia, dilate vascular smooth muscle, relieve blood vessel spasm, etc[4]. The active principle of XST is Notoginseng saponin, which activates blood circulation to remove stasis, dilate vessels and improve blood circulation. Betahistine is a diamine oxidase inhibitor, which can apparently dilate the vertebral basilar arterial system, especially cerebral blood vessels, and so could markedly alleviate brain, and increase cochlear, vestibular blood flow. Therefore, these two drugs may act synergistically together.

In our experiences, it is discovered that the total effective rate of the treated group was 100%, which was better than that of control (90.5%, $P<0.05$), and the difference was significant. TCD monitoring showed that in the treated group after treatment, the vertebral basilar artery mean blood flow velocity, in comparison with before treatment, significantly increased ($P<0.01$). Hemorheology prarmeters of both groups got better than that before treatment ($P<0.01$), and the difference was highly significant. It denotes that YXDM injection, BHI and the two in combination all have good efficacy in treating vertebra basilar artery ischemia vertigo. We selected the two kinds of drugs in the treatment because their initiation of effect is quick, they could rapidly relieve vertigo and other symptoms. But TCM acts slowly yet it could be sustained longer. When TCM and WM act synergistically together, better effect would be won than TCM or WM acts alone. But our research merely observed the immediate efficacy, and the long-term efficacy and recurrence rate remain for further observation.

REFERENCES

1. Huang RX, Liang XL, Liu ZL, chief editors. Clinical neurology. Beijing: People's Medical Publishing House, 1996 : 225.
2. Pu CQ, Lang SY, Wu WP, chief editors. Cerebral vascular diseases. Beijing: People's Military Medical Medicine, 1999 : 275.
3. Lenoir M, Pedruzzi E, Rais S. Sensitization of human neutrophil defence activities through activation of platelet activating receptors by ginkgolide B, a bioactive component of the Ginkgo biloba extract EGB 761. Biochem Pharmacol 2002;63(7) : 1241—1249.
4. Closure F. Gingko biloba extract (EGB761), state of knowledge in the dawn of the year 2000. Ann Pharm Fr 1999;57(1) : 158—188.

(Received May 9, 2005)