

Lumbrokinase versus Warfarin in Treating Left Atrial Thrombosis

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Left atrial thrombus (LAT) is the common symptom of a patient with chronic valvular heart disease. Author used lumbrokinase oral administration to treat left atrial thrombus, result appeared to be effective, and the report is as follows:

1. MATERIAL AND METHOD

1.1 General Information in April 1990 to December 2004, 80 patients with left atrial thrombus resulting from bicuspid valvular disease were included in the study. They were randomized into Lumbrokinase group and Warfarin group. There were 42 patients in Lumbrokinase group, with 41 females and 1 male; subjects ranged from 29 to 64 years of age with the average age being 43.5. There were 38 patients in Warfarin group with 36 females and 2 males; subjects ranged from 32 to 68 years of age, with the average age being 40.2. *Diagnosis standard:* All diagnoses were made through transthoracic echocardiography. Left atrial thrombus is characterized as echo reflection anomaly occurring in the left atrial auricle with a lack of corresponding motion to the cyclic cardiac movement^[1]. During the scan attention was paid to left atrial myxoma as a possible differential diagnosis, which is characterized as: a more regular shaped light reflection with defined borders in the left atrium. The echo is of medium intensity with an uniform distribution, which during diastole would travel to bicuspid valve

entrance or to the left ventricle and become elliptical in shape. During systole the echo would enter into left atrium and become circular in shape^[2]. Lumbrokinase group's thrombi volume averaged $(6 \times 7.5 \times 8) \text{ cm}^3$, and the average thrombi volume in the Warfarin group was $(7 \times 6.98 \times 7.5) \text{ cm}^3$.

1.2 Treatment Method In addition to anti-heart failure therapy, the Lumbrokinase group took two capsules of Lumbrokinase orally (40mg), three times daily. Warfarin group took warfarin 2.5-15mg orally, once daily. Warfarin treatment group had International Normalized Ratio (INR) checked every 3 days, and Warfarin dosage was adjusted accordingly. Once target INR of 2-3 was achieved, INR was checked once every week to make sure it was stable. Lumbrokinase group used the same way to observe INR changes.

1.3 Therapeutic Evaluation Echocardiogram was used to observed size changes of left atrial thrombus once per week. Final assessment was made after 45 days of treatment. The treatment was considered a cure if the thrombus resolved, and considered effective if the thrombus size was reduced by 30% or more. Possible adverse effects such as nose bleed, increased menstrual flow or increased menstruating days, gastric hemorrhage, ecchymosis, etc. were observed.

1.4 Statistics Process the chi-square test (X^2), standard $\alpha = 0.05$.

2. RESULTS

Lumbrokinase was effective for atrial thrombosis with a cure rate of 83.8% and total effectiveness rate of 95.2%. No adverse effects and no influence on International Normalized Ratio (INR) were observed. The cure rate in Warfarin group was 82.3% and the total effectiveness rate was 97.3%. There were 6 subjects with increased menstrual flow, and 2 subjects had small amount of nose bleeding. See table 1 for two treatment groups' effects. The difference between groups was not statistically significant with $P > 0.05$.

Table 1. Effectiveness of Lumbrokinase versus Warfarin in treatment of left atrial thrombus

Group	n	Recovered	Effective	Void
Lumbrokinase	42	35	5	2
Warfarin	38	31	6	1

3. DISCUSSION

Lumbrokinase has been proven to be a highly valuable agent in clinical practice. It is an oral multi-enzyme preparation with specific affinity towards the fibrin within thrombi. It can effectively resolve micro-thrombi, improve microcirculation and brain collateral circulation, repair injured endothelial blood vessel cells, reduce blood viscosity, and reduce blood platelet aggregation. Its effectiveness is clinically obvious and has no significant adverse effects^[3]. Our study suggested that using lumbrokinase in the treatment of left atrial thrombus had the following characteristics:

①The treatment was simple and had no adverse effects. ②The treatment group all had bicuspid valvular heart disease, which was likely the main cause of left atrial thrombus. ③The three patients who did not respond to the treatment (lumbrokinase or

warfarin) were all over 50 years of age, female, and had age-related valvular changes. Further study is needed to determine whether there are correlations between age, dosage, and duration of illness with treatment effectiveness.

④The subjects were predominant females, thus results may not be extrapolated to male subjects. All patients had been taking 50-75mg of aspirin daily; this might also indicate that aspirin's preventive effectiveness for cardiac thrombosis is poor in females. ⑤Lumbrokinase and Warfarin may be effective in treating early-stage thrombosis, but ineffective for treating late-stage organized thrombi. This theory needs verification by further research.

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