Clinical Study of Low Dose Urokinase Combined with Low Molecular Weight Heparin in the Treatment of Deep Venous Thrombosis of the Lower Extremities

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Abstract. To observe the curative effect of slow infusion of low-dose urokinase and low molecular weight heparin calcium in elderly patients with acute deep venous thrombosis. Methods: 45 patients with acute deep venous thrombosis in the lower extremities were selected and randomly divided into two groups. 20 cases of the control group using the traditional method of administration by the limbs of other body superficial vein infusion of small dose urokinase (400000u·times⁻¹,1time·d⁻¹) thrombolysis and low molecular weight heparin (100u·kg⁻¹, Ih, 1time·12 h⁻¹) on the first day of anticoagulation. Play with warfarin 2.5 mg - late 1 (adjusted according to INR dosage, INR 2~3) for 14 days; 25 patients in the experimental group improved drugs were given by the distal limb superficial vein slow pump into the small dose of urokinase (100000u·times⁻¹, 2times·d⁻¹), low molecular weight heparin calcium (100 U·kg⁻¹, Ih, 1time·12 h⁻¹), the first day with warfarin 2.5 mg - late 1 (adjusted according to INR dosage, INR 2~3) for 14 days. Results: in the control group, 2 cases were cured, 7 cases were improved, 11 cases were invalid, 9 cases we re total effective, 11 cases were cured in the experimental group, 9 cases were improved, 5 cases were invalid, 20 cases were total effective. The total effective rate of the two groups was statistically different (P = 0.03). Conclusion: the improved method of slow infusion of small dose of urokinase and low molecular heparin calcium through the distal superficial veins of the affected limb in elderly patients with deep venous thrombosis is superior to the traditional medication.

Introduction

LEDVT is a common peripheral vascular disease, with an incidence of 108/10 million, male> female, and the incidence of increases rapidly after 40 years of age. [1] According to the location of the disease, it is divided into central, peripheral and mixed type. The dilatation of the superficial vein of the lower limb and the swelling of the lower limb pain are the main clinical manifestations. The abnormality of the vascular wall and the change of blood flow are the main causes of LEDVT. In addition, genetic alterations lead to abnormal coagulation and coagulation factors, and iliac vein compression syndrome (IVCS) can also lead to LEDVT[2-4].
The incidence of LEDVT in pregnant women is 5 times that of non-pregnant women. The risk of deep venous thrombosis (DVT) increased to 20 times after 6 weeks postpartum\cite{5,6}, while the incidence of LEDVT in women with spontaneous labor is greater than that in caesarean section women. Blood type is also one of the risk factors for LEDVT. It has been reported that shows\cite{7,8}, that the incidence of venous thrombo-embolism (VTE) is high in non O blood group. Therefore, considering non O blood is a risk factor of this disease. Pulmonary embolism (PE) and LEDVT are considered to be different processes of the same disease. According to the statistics from 50% to 70% LEDVT, the patients were combined with PE, while about 80% of the patients with PE were combined with LEDVT. With the development of science and technology, increasing interventional therapy, application of venipuncture equipment and intravenous enteral nutrition are all factors that increase the incidence of LEDVT. The author does not advocate excessive venipuncture and venous operation, but the placement of the inferior vena cava filter can effectively reduce the incidence of fatal pulmonary embolism. Old age, hyperlipidemia, hypertension, and diabetes can increase the hypercoagulable state of the thrombus. Therefore, the elderly are the high risk population of LEDVT. The incidence of LEDVT in the elderly is basically the same as the incidence of stroke. LEDVT is the second cause of death and common complications in patients with malignant tumor.

**Objects and Methods**

**Objects**

Selected 45 cases of acute deep venous thrombosis in our hospital from July 2015 to July 2017, including 31 male and 14 female. All the patients with the following conditions: (1) with or without obvious clinical symptoms (limb swelling, pain, skin becomes darker and limited), by color Doppler examination showed: slow blood flows, intraluminal irregular blood filling defect or Flocc echo that deep vein thrombosis. (2) The function of coagulation is normal. (3) the time of onset: 48 hours < 2 weeks.

General data, there were no significant differences in age, sex, course of disease, body mass index, smoking history and comorbidity between the two groups. According to exclusion criteria, there are recent active bleeding, major surgery, severe trauma, severe liver and kidney disease in nearly 6 months, cerebrovascular accident, intracranial lesions, active ulcers and uncontrolled hypertension in February.

**Method**

The general examination was routine biochemistry, coagulation function, D- two polymer, chest CT examination, brain CT examination, color Doppler examination.

**Therapy.** 45 patients with acute deep venous thrombosis were randomly divided into two groups. The control group of 20 cases, the traditional method of Administration for administration of limb superficial vein to other surface, small dose of urokinase (400 thousand u, 1 - 1, D - 1) intravenous thrombolysis and low molecular weight heparin calcium (100 U - kg - 1, Ih, 1 - 12 h 1) the first day with warfarin 2.5 mg - late 1 (adjusted according to INR dosage, INR 2~3) for 14 days; 25 cases of test group using the modified method of Administration for administration by the distal limb intravenous infusion of low
dose urokinase slow (100 thousand U - 1 times, 2 times d - 1) thrombolysis and low molecular weight heparin calcium (100 U - kg - 1, Ih, 1 - 12 h - 1) the first day with warfarin 2.5 mg - late 1 (adjusted according to INR dosage, INR 2~3) for 14 days.

**Curative effect standard.** The cure: the symptoms disappeared, no lower extremity pain after color Doppler examination confirmed the iliac femoral vein recanalization without reflux, limb circumference difference is 1 cm. The improvement: symptoms and signs disappeared, standing there without edema or edema, color Doppler ultrasonography of the iliofemoral venous partial recanalization, limb circumference difference of more than 2 cm. Effective: cure + improvement. The invalid: no change before and after the treatment of limb circumference, symptoms completely disappeared, lower extremity edema, color Doppler examination results iliofemoral vein occlusion did not improve obviously. In addition, the need to observe the anticoagulant during hemorrhage in patients with minor bleeding events, including nasal bleeding, gingival bleeding, skin ecchymosis, mucosa of menorrhagia; severe bleeding can be manifested as hematuria, gastrointestinal bleeding, the most serious occurrence of intracranial hemorrhage.

**Statistical treatment.** All data were input into SPSS 17 software, and the measurement data were expressed by mean + standard deviation. Counting data was expressed in percentage. T test was used, and P< 0.05 was statistically significant.

**Results**
In the control group, 2 cases were cured, 7 cases were improved, 11 cases were invalid, 9 cases were total effective, 11 cases were cured in the experimental group, 9 cases were improved, 5 cases were invalid, and 20 cases were effective.

**Discussion**
Low molecular weight heparin has the activity of antithrombin III dependent Xa factor, which can inhibit arteriovenous thrombosis in vivo and in vitro. It can stimulate endothelial cells to release tissue factor coagulation pathway inhibitor and plasminogen activator, and then achieve antithrombotic effect. Urokinase is similar to trypsin serine protease. It is a kind of active protein secreted by the kidney. It can be divided into two types: low molecular weight and high molecular weight. The main form consists of two polypeptide chains, the molecular composition of peptide bond broken plasminogen plasmin, efficacy to thrombosis of the internal circulation, fibrin degradation and factor V and II induce systemic fibrinolysis, with significant thrombolytic effect, also can enhance the ADP activity of blood vessels, anti-platelet aggregation induced by ADP avoid thrombosis. Studies have shown. The intravenous infusion of urokinase activates the plasminogen activator, which can disintegrate the thrombus from the inside. At present, there are more than ten guidelines for anticoagulation and thrombolysis in China, but there are not many doctors who are really familiar with the guidelines and have clinical diagnosis and treatment according to the guidelines. Most doctors still treat diseases by experience. Standardized treatment is not equivalent to effective and safe treatment. Clinicians should combine individualized treatment plan with patients' condition and condition to achieve better treatment effect. In conclusion, the improved method and the smaller dose of urokinase for the treatment of some patients with lower extremity deep venous thrombosis have achieved good results. Pressure.
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References