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RESEARCH ARTICLE

EFFECTS OF SURGICAL THROMBECTOMY ON THE TREATMENT OF PROSTATE CANCER COMPLICATED WITH DEEP VENOUS THROMBOSIS OF THE LOWER EXTREMITIES

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ABSTRACT

Objective: To investigate the effects of surgical thrombectomy on the treatment of prostate cancer complicated with deep venous thrombosis of the lower extremities. **Methods:** Between June 2015 and December 2016, 96 patients of prostate cancer complicated with deep venous thrombosis of the lower extremity who were admitted to Hangzhou Cancer Hospital were included into this study. The patients were randomly divided into Observation group and control group according to the random number table method and the difference of intervention measures (surgical thrombectomy *vs* drug therapy). Platelet (PLT), fibrinogen (Fbg), prothrombin time (PT) and new thrombosis rate were observed before and after treatment within 2 weeks. **Results:** Before treatment, there was no significant difference in PLT, Fbg and PT between the two groups (P>0.05). PLT and Fbg decreased significantly in the two groups after treatment, and the decrease in the observation group was more significant (P<0.05). The thrombosis rate (4.35%) was significantly lower than that of the control group (16.00%), and the difference was significant (P<0.05). **Conclusion:** Surgical thrombectomy is more effective than drug intervention in the treatment of prostate cancer with deep venous thrombosis of the lower extremity. It can be further studied as a preferred protocol.

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INTRODUCTION

In the course of surgical treatment of prostate cancer, it is easy to form deep vein thrombosis of the lower extremity if the patient's intraoperative abdominal pressure is greater than the venous return pressure of the lower extremity (Toukh et al., 2012). Deep venous thrombosis of the lower extremity is a disease of the lower extremity venous occlusion, which can cause fatal pulmonary embolism, lower extremity pain, heavy feeling of varying degrees, swelling, increased skin temperature and superficial varices, and even limb necrosis. Serious and adverse effects caused by safe and healthy living (Rajasekhar, 2017). The clinical treatment of deep venous thrombosis of lower extremities is difficult. The treatment methods include non-surgical treatment and surgical treatment such as drug thrombolysis, but there is still much controversy about how to treat the disease in clinical practice (Lyon, 2017). Surgical treatment is essentially a comprehensive treatment of surgical thrombectomy plus drug thrombolysis. It is theoretically considered to have a better therapeutic effect on deep venous thrombosis of the lower extremities (Ishikawa et al., 2014). In order to explore the clear therapeutic effect of surgical thrombectomy, this study will discuss the clinical efficacy of surgical thrombectomy for prostate cancer with deep venous thrombosis of the lower extremities. The results are reported below.

MATERIALS AND METHODS

Patients: Ninety-six patients with prostate cancer and deep venous thrombosis of the lower extremity who came to Hangzhou Cancer Hospital from June 2015 to December 2016 were selected as subjects. The patients were divided into two groups according to the random number table method and according to the difference of intervention measures. There were 50 patients in the control group, aged 52-79 years, mean age (63.4±7.2) years old; 13 patients with diabetes, 14 patients with hypertension, 5 patients with cerebral thrombosis, and 6

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A total of 46 patients in the observation group, aged 50-80 years, mean age (63.5 ± 7.1) years; 12 patients with diabetes, 15 patients with hypertension, 6 patients with cerebral thrombosis, and 4 patients with coronary heart disease arrhythmia. After analysis, the basic data such as gender composition and age structure of the two groups were not statistically significant (P>0.05), which was comparable. The study has been reviewed and approved by the hospital ethics committee, patients and their families know the advantages and disadvantages of each group of treatment methods, and voluntarily signed informed consent. Inclusion criteria: a. The patients were in line with the clinical diagnostic criteria for prostate cancer (Hyun et al., 2011); b. The patients were confirmed by prostate biopsy or transurethral resection of prostate for prostate cancer; c. After radical prostatectomy, the deep venous thrombosis of the lower extremity was confirmed by venography. Exclusion criteria: a. Combination with other serious organ diseases; b. Patients with coagulopathy; c. Patients with other malignant tumors or tumor cell metastasis; d. Patients with drug allergy to this study.

Treatment: The patients in the control group were treated with drugs as follows: intravenous infusion of molecular dextran 500 mL, urokinase 500,000 U/d, thrombosis, and subcutaneous injection of low molecular weight heparin 200 IU/(kg•h) for 5-7 days; After the patient was discharged from the hospital, he was treated with elastic stocking pressure, and after the venous patency of the patient was confirmed by angiography, the patient was given oral warfarin. The international normalized ratio (INR) was 2.0-3.0 during warfarin treatment. Patients in the observation group underwent surgical thrombectomy.

The specific steps were as follows: after the patient was anesthetized, the prone position was taken and the inferior vena cava filter was placed; first, the total femoral vein was cut at the position of the patient's groin, and the thrombus was removed with the vascular clamp; Take a 7F or 8F Fogarty catheter suitable for the patient's blood vessel thickness, insert it into the proximal end of the patient's patient, reversely remove the thrombus from the proximal end of the patient, and use a blood-squeezing or massage technique to remove a small amount of thrombus from the telecentric end of the patient. The saphenous vein is infused with a silicone tube for postoperative thrombolysis.

Among them, patients with intraoperative total venous stenosis less than 50% will not be treated; for patients with stenosis more than 50%, Fogarty catheters will be used for repeated thrombectomy, with artificial vascular bypass with support ring, stent to The vein is formed or the inner balloon is expanded and formed. After the operation, the patient's limb was raised, and the silicone tube was instilled during the operation. The patient was given intravenous urinary kinase 500,000 U/d, heparin 12500 U/d, low molecular weight dextran and thrombus, subcutaneous injection of low molecular weight heparin. 200IU/(kg•h), maintained for 5~7d; after the patient was discharged from the hospital, he was treated with elastic stocking pressure, and after venous patency, the patient was switched to oral warfarin to maintain the INR of 2.0~3.0.

Observation Index: After treatment of two weeks, the platelet content (PLT), fibrinogen (Fbg) level, and prothrombin time (PT) were measured before and after treatment, and the new thrombosis rate was observed.

Statistical analysis: All data were statistically analyzed by SPSS 17.0. The t-test was used for each group of measurement data. The data of each group were tested by $\chi 2$ test, and the difference was statistically significant at P<0.05.

RESULTS

Comparison of PLT, Fbg and PT before and after treatment in two groups of patients: Before treatment, the difference of PLT, Fbg and PT between the two groups was not statistically significant (P>0.05). At 2 weeks after treatment, the PLT and Fbg of the two groups were lower than those before treatment, and the observation group was significantly lower than the control group. The difference was statistically significant (P<0.05); there was no difference in PT between the two groups (P>0.05) (Table 1).

New thrombosis rate in two groups of patients: After treatment, 2 patients with new thrombosis were observed in the observation group. The new thrombosis rate was 4.35% (2/46), which was significantly lower than that of the control group (16.00% (8/50)). The difference was statistically significant (P<0.05).

DISCUSSION

High-risk prostate cancer patients, patients often have cardiovascular and cardiovascular diseases, chronic respiratory diseases, etc., and patients stay in bed for a long time after surgery, it is prone to blood flow stagnation or hypercoagulability, plus patients during surgery During general anesthesia, the muscles are completely relaxed, the muscle contraction function of the lower limbs is lost, and the muscle pump is lost. At the same time, the patient's peripheral veins are dilated, the blood flow velocity is slowed down, and the positive pressure ventilation of the ventilator is used. The venous return flow rate of the patient is slowed down, and the blood volume of the lower extremity venous return is significantly reduced, causing venous blood flow to stagnate, eventually causing deep vein thrombosis of the lower extremity (Toukh et al., 2012; Cadmus et al., 2018). The occurrence of deep venous thrombosis of the lower extremities affects the postoperative recovery of patients, and also increases the risk of pulmonary embolism due to detachment of the embolism. Therefore, timely diagnosis, treatment and appropriate prevention are very important. At present, the clinical treatment of deep vein thrombosis of lower extremities mainly includes anticoagulation, thrombolysis, sputum aggregation and other medical treatments and surgical treatments, and there is still considerable controversy about which method to choose for treatment. In recent years, relevant research has shown (7), if patients have no obvious surgical contraindications, they should choose surgical thrombectomy, which is of great significance to protect patients from embolization of venous valve function, reduce the sequelae of patients and improve the cure rate. PLT and Fbg are indicators of coagulation function and can be used to detect hypercoagulable state of the patient (Zhao, 2015). The results of this study showed that compared with the drug thrombolysis, the PLT and Fbg decreased significantly in the observation group after surgery, and the PLT and Fbg in the observation group were lower than that in the control group.

Table 1. Comparison of PLT, Fbg and PT before and after treatment in two groups of patients

Group	Time	PLT （×109/L）	Fbg （g/L）	PT （s）
Observation	Before treatment	226.74±25.68	3.94±0.62	13.32±1.24
Group （n=46）	After treatment	198.32±20.17ab	2.73±0.58ab	13.15±1.21
Control Group （n=50）	Before treatment	227.28±26.03	3.89±0.61	13.35±1.20
	After treatment	208.21±20.56a	3.16±0.67a	13.22±1.18

Note：a for comparison within group P<0.05，b for comparison in two groups P<0.05。

The new thrombosis rate in the observation group was also significantly lower. In the control group; it indicates that the surgical thrombectomy treatment is more effective in treating prostate cancer with deep venous thrombosis in patients with lower extremity deep venous thrombosis, and it can prevent thrombus formation more effectively. This accounts for the surgical thrombectomy not only includes the surgical thrombectomy operation, but also removes the patient's lower extremity intravenous embolization earlier, which can effectively restore the patient's unobstructed blood flow in a short period of time. It can also be given to the patient after the surgical thrombectomy. Thrombolytic and anticoagulant therapy can help dissolve newly formed thrombus in time, and effectively prevent the formation of new thrombus in patients, thus protecting the patient's venous valve function to a greater extent, and helping patients to recover soon (Toukh et al., 2012; Fukuda et al., 2017). In summary, the effect of surgical thrombectomy versus drug thrombolysis for prostate cancer combined with deep venous thrombosis of the lower extremity is more significant, and can be further studied as a preferred protocol.

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