Study on the Correlation of Diabetic Lower Extremity Artery Disease and Prognosis

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Keywords: Diabetic foot, Lower extremity arterial disease, Prognosis.

Abstract. Studies have shown that diabetic feet occur in 15%~25% diabetics, and about half of them will have wound infection. There are many factors that lead to poor prognosis of diabetic foot, such as peripheral vascular disease, area and depth of foot ulcer, peripheral neuropathy and infection. Therefore, the pathogenesis of diabetic foot is complex, and many factors are one of the main causes leading to amputation. At the same time, diabetic foot ulcers can significantly increase the health risk of diabetic patients; increase the incidence of cardiovascular accidents and all-cause mortality. Therefore, the early diagnosis and treatment of diabetic foot is an important means to improve the quality of life and the survival time of diabetic patients. Although the treatment of diabetic foot has achieved remarkable results, because of its complex mechanism, the existing treatment methods are still difficult to meet the clinical needs, and new therapies need to be further explored. In our hospital from April 2014 to August 2016 a total of 67 cases of diabetic patients as the research object, which will be 36 cases of diabetic foot were classified as group DF, 31 cases of non-diabetic foot patients were classified as non DF group, compare two groups of patients with lower limb artery disease, 1 years of follow-up will be based on whether the amputation patients divided into amputation group and non-amputation group, and the general situation and related factors of two groups of patients were statistically analyzed.

Introduction

Diabetic foot (DF) is one of the most serious and most common chronic complications of diabetes. DF is also considered to be a marker of systemic multiple organ lesions, especially the ulcers caused by severe lower limb ischemia, which greatly increases the occurrence of in the occurrence of cardiovascular events. DF is the main cause of amputation in diabetic patients, and 85% of the lower distal amputations associated with diabetes are after foot ulcers. According to statistics,¹¹ has 15 times the amputation rate of diabetic foot, and nearly half of all patients except for traumatic amputation each year suffer from diabetes, and most of them are accompanied by lower extremity arterial disease. Therefore, this study is to observe the correlation between diabetic foot and diabetic lower extremity arterial disease and
prognosis, so as to provide evidence for guiding effective prevention and treatment of diabetic foot and reducing amputation rate.

Information and Methods

General information: In our hospital from April 2014 to August 2016 were 36 cases of diabetic foot patients (DF group) and 31 cases of non-diabetic foot patients (non DF group) as the research object, the patients age 35~90 years, mean age 58.62 ± 9.05 years, there were 42 males and 25 females, the average duration of 7.49 ± 4.06 years.

Method After admission, the patients recorded their general data and detected their blood pressure, blood sugar and whether they had infection or neuropathy. At the same time, the color Doppler examination of the lower extremities was performed, and the blood flow of the lower extremities was evaluated. According to the degree of the stenosis was divided into 5 grades: normal grade 0 stenosis; <50%, no significant hemodynamic changes I; stenosis 51%~74%, with the hemodynamic changes of II level; 75% ~99% had obvious hemodynamic changes for III: lumen occlusion; no blood flow signal even a flat, distal blood vein like spectrum is grade. According to the blood flow, the incidence of lower extremity artery in two groups of patients was statistically analyzed, of which 0 was lower extremity arterial disease, and I level was mild arterial disease of the lower extremities. Grade II to IV was severe lower extremity arterial disease. All patients were followed up for 1 year. According to whether the patients were amputated, they were divided into amputation group and non-amputation group. The general condition of the two groups was compared, and the related factors with significant difference were statistically analyzed.

Statistical method carries on the statistical processing and analysis of the data obtained using the SPSS19.0 software, the measurement data were expressed as mean ± standard deviation (x±s), the count data were expressed by the number of cases and the percentage. The count data were compared by x^2 test. Using t test, correlation analysis using logistic regression analysis, P <0.05 was considered statistically significant.

Results

Two groups of patients were followed up for 1 year. In group DF, 36 cases were amputated 10 cases (amputation group), 26 cases were not amputated (no amputation group), the amputation rate was 27.8%, and the admission data of two groups were compared. The results showed that the two groups were significantly different in the history of amalgamated infection, neuropathy and amputation (P < 0.05), with statistical significance. (table 1)

<table>
<thead>
<tr>
<th>group</th>
<th>Quantity</th>
<th>no</th>
<th>Mild</th>
<th>Severe</th>
<th>Total incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>DF</td>
<td>36</td>
<td>10(27.8)</td>
<td>7(20.0)</td>
<td>20(57.1)</td>
<td>26(74.2)</td>
</tr>
<tr>
<td>-DF</td>
<td>31</td>
<td>12(38.7)</td>
<td>10(32.3)</td>
<td>9(29.0)</td>
<td>22(55.0)</td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>-</td>
<td>4.041</td>
<td>2.758</td>
<td>12.733</td>
<td>4.041</td>
</tr>
<tr>
<td>P</td>
<td>-</td>
<td>0.044</td>
<td>0.097</td>
<td>0.000</td>
<td>0.044</td>
</tr>
</tbody>
</table>
Logistic Regression Analysis on the Prognostic Factors of Diabetic Foot Patients

The dependent variable is amputation, in diabetic neuropathy, infection and prior amputation as independent variables, logistic regression analysis, the results showed: diabetic neuropathy (OR=2.7, p=0.062), infection (OR=4.4, p=0.025) and prior amputation (OR=5.6, p=0.016) showed that diabetic patients with infection and previous history of amputation is the independent risk factors of patients with diabetic foot amputation occurred within one year.

Discussion

Lower extremity arterial disease clinical research has focused on the general population, and for the study of diabetes is poorly understood, but according to the clinical observation of patients with diabetic foot appear more symptoms of lower extremity arterial disease, research shows that [2] had lower extremity arterial disease in patients with diabetes is about 8%, the incidence rate with the increasing of age and duration of the rising the trend of the disease course more than 20 years in patients with lower extremity arterial disease rate can be increased to 45%, indicating the existence of some sort of connection between the two, but the interaction between occurrence and development and prognosis in diabetes is unknown. The characteristics of lower extremity arterial disease in diabetic foot patients are similar to those of common lower extremity arterial disease. They all have the characteristics of early onset and rapid progress. Patients often show enhanced coagulation activity and thrombophore easily. The difference is that the lower extremity arterial lesion of diabetic foot is mainly the tibiofibular artery below the knee. The incidence rate is 90%, and the calcification of the arteries is more prominent than [3-4]. The clinical diagnosis methods are mainly observed in patients with intermittent claudication, foot and ankle brachial artery pulsatility index and toe systolic blood pressure, transcutaneous oxygen pressure, Doppler ultrasound and angiography, this study used Doppler ultrasound examination for patients with lower extremity arterial disease change situation analysis, classification and evaluation of its severity through the observation of patients with vascular stenosis, partly because of its simple operation, low cost, on the other hand for severe lower extremity arterial disease patients by Doppler ultrasound can accurately observe patients with vascular stenosis, has important significance to the diagnosis and interventional treatment of [5]. After examination, 67 cases of diabetic patients with a total of 42 cases of patients with the disease of lower extremity arterial disease, the incidence rate of the diabetic foot patients was 62.6%, significantly higher than that of non-diabetes foot patients, suggesting that the probability of disease in patients with diabetic foot with lower extremity arterial disease of diabetic foot were higher than non. And through the follow-up on the prognosis of patients with diabetic foot 1 years after the discovery of 36 cases, including 27.8% patients with amputation, analysis of the general situation of amputation patients and non-amputation patients on admission showed difference in two groups of patients with infection, neuropathy and amputation history, by logistic regression analysis showed that infection and past history of amputation is an independent risk factor for amputation patients.

Therefore, we think that diabetic foot patients have higher probability of lower limb arterial disease. Therefore, we should make relevant examinations as early as possible in diabetic patients with early onset of diabetic foot, so as to provide help for early treatment. At the same time, the active treatment of anti-infection treatment has an important effect on the prevention of short term amputation in patients with diabetic foot with lower extremity artery disease.
Acknowledgement

This study was the outcome of the “establishment and experimental study of the mouse deep vein thrombosis model” of Jilin University.

References


