Evaluation of vascular status in patients with diabetic foot referred to the Imam Khomeini hospital in Ardabil in 2022-2023

Abstract

Background: Diabetic foot ulcer is a common complication of diabetes that carries a serious risk of amputation, and its management requires a multispecialty team approach. In this context, arterial Doppler ultrasound can participate in the diagnosis of peripheral arteriopathy and decision making for treatment.

Aim: To evaluate the vascular status in patients with diabetic foot referred to the Imam Khomeini hospital in Ardabil in 2022-2023.

Materials and methods: The information of 230 patients with diabetic foot admitted to Imam Khomeini Hospital in Ardabil in 2022-2023 was collected. Demographic information was collected using a checklist made by the researcher, information related to wound grade and amputation through clinical examination, and information related to the location of vascular involvement and the degree of vascular involvement and vascular blood flow pattern, etc., according to the results of color doppler ultrasound. The collected data were entered into SPSS version 24 software and analyzed based on the objectives of the study.

Results: The average age of patients was 62.3 years (standard deviation 10.6) and 142 patients (61.7%) were male. The average duration of diabetes was 13.9 years (standard deviation 7.4). The wound grade was grade 3 in most cases (47.5%). 153 patients (66.5%) had high blood pressure, 58 patients (25.2%) had heart disease, and 48 patients (20.9%) had kidney disease. Smoking was present in 96 patients (41.7%). According to the results of color doppler ultrasound, the most common site of involvement was the posterior tibial artery (44.1%) and the anterior tibial artery (41.3%); the dominant pattern of blood supply in common and superficial femoral arteries and popliteal artery was triphasic in most cases (61.4 to 73.2%) and in posterior and anterior tibial, peroneal, and dorsalis pedis arteries, was mostly monophasic (43.4 to 50%); the highest frequency of non-significant stenosis and significant stenosis was in the posterior tibial arteries (10.7% and 11.4%, respectively) and anterior tibial arteries (11.4% and 6.9%, respectively); prevalence of calcified plaques (24.1 to 30.7% versus 5.4 to 11.9%)

and atheroma (35.9 to 44.1% versus 25.1 to 28.1%) in distal arteries was more than proximal; the prevalence of thrombotic plaques was low, most of which were seen in anterior tibial (6.9%), superficial femoral (4.7%), and posterior tibial (4.5%) arteries.

Conclusion: Diabetic foot ulcer was more common in male patients, over 60 years old, and with a duration of diabetes more than 10 years. A high prevalence of history of amputation, high blood pressure, heart disease, kidney disease, and smoking was seen in the patients. It was also found that doppler ultrasound as a reliable non-invasive method can be used to evaluate the vascular condition in diabetic foot patients.

Keywords: Diabetic foot, vascular examination, color doppler ultrasound.