Doppler ultrasound assessment of lower limb arteries in diabetic foot

Mohammed Ali Salem, Mohamed Helmy El Kaffas, Aly Mahmoud El Ashmawy

Cairo University
Giza, Egypt

Master (Msc) Thesis, 2001

Abstract

The aim of this work is to study the pattern of vascular affection using the color-coded Doppler sonography with spectral analysis and ankle brachial index in cases of diabetic foot disease. The results were compared with that of diabetics with chronic lower limb ischaemia not mounting to diabetic foot disease in an attempt to demonstrate the vascular changes that predispose to diabetic foot disease. The study involved the examination of 40 lower extremity arterial trees that were categorized into two groups. The first group consisted of 20 lower extremity arterial trees of 20 patient with diabetic foot disease while the second group consisted of 20 lower extremity arterial trees of 10 diabetic patient with chronic lower limb ischaemia not mounting to diabetic foot disease. Conventional angiography examinations were performed to the second group of cases (chronic lower limb ischaemia) in order to confirm the results and to evaluate the accuracy of the performed color Doppler sonography. The study revealed that although there was a difference in incidence of vascular affection (occlusion / stenosis) between diabetics with chronic lower limb ischaemia and those with diabetic foot disease, there was an evident similarity regarding the pattern of vascular affection. In both groups, most of the affected arterial trees were in the form of multiple occlusions. The incidence of vascular occlusions in the infra-popliteal arteries was significantly higher than that of the ilio-femoro-popliteal segments. Of the occluded infra-popliteal arteries distal segments were more affected than the proximal segments. The superficial and deep femoral arteries were the most affected by haemodynamically significant stenotic lesions.

Keywords
Angiography, Angiopathy, Diabetes, Foot, Doppler,