

# “A STUDY ON THE PREVALENCE OF PERIPHERAL VASCULAR DISEASE IN DIABETIC FOOT ULCER PATIENTS”

## Abstract:

**BACKGROUND:** Peripheral Vascular Disease is a chronic limb ischemia caused by atherosclerosis of the peripheral arteries. In diabetic patients, atherosclerosis occurs prematurely and progress at an accelerated pace commonly involving crural arteries namely tibials and peroneals with baring of the arteries of the foot. The perception of muscle pain in the lower limbs on exercise which is the most common symptom of Peripheral Vascular Disease may be blunted in diabetic patients by the presence of peripheral neuropathy. Therefore a patient with diabetes and Peripheral Vascular Disease is more likely to present with an ischemic ulcer or gangrene than a patient without diabetes. The use of Ankle Brachial

Index (ABI) in the clinic and bedside provide a measure of bloodflow to the ankle. This could help early detection, initiate early therapy and may thus reduce the risk of critical limb ischaemia and limb loss.

**OBJECTIVE:** To evaluate the occurrence of Peripheral Vascular Disease in diabetic foot ulcer patients by measuring Ankle Brachial Index using portable Hand held Doppler.

**METHOD:** This is a cross-sectional study conducted in diabetic foot ulcer patients of Government Kilpauk Medical College, Kilpauk , Chennai-600 010 for a period of 10 months (December 2016 to September 2017). Their demographic, clinical, and laboratory parameters were noted and documented. Ankle-Brachial Index (ABI) was measured for each individual patient using the portable hand held Doppler.  $ABI < 0.9$  is taken as the cut-off to identify the patient as having Peripheral Vascular Disease (PVD).

**RESULTS:** A total of 100 patients were recruited. 67 were male and 33 were female patients. About 23 patients were on treatment with Insulin and 60 patients were on treatment with Oral Hypoglycemic Agents. 17 patients were found to had no treatment for diabetes. About 65 patients had no co-morbid conditions other than diabetes. 31 patients had associated Hypertension. 2 patients had associated Bronchial Asthma. 2 patients had associated Hypertension and Coronary Artery Disease. Right foot was involved in about 54 patients while left foot was involved in 46 patients. History of trauma was present in 67 patients. 13 patients presented with cellulitis and 52 patients had active discharge from the foot ulcers. The youngest in the study population was 29 years and the eldest was 81 years. The duration of diabetes ranges from 2 weeks to 20 years. ABI was found to be 1 in majority of patients (83), 0.9 in 5 patients and 0.8 in 12 patients. Taking into consideration of ABI <0.9 as the cut-off value 12 patients were found to have Peripheral Vascular Disease (PVD). Among the patients identified to have Peripheral Vascular Disease (12) majority of patients (9) had duration of diabetes  $\geq$  6 years and

about half of the patients (6) were on treatment with Insulin for uncontrolled diabetes; rest of the patients (6) were on treatment with Oral Hypoglycemic Agents and glycemic status during study was found to be under control in 8 patients (5 on insulin therapy and 3 on OHAs respectively).

**CONCLUSION:** This study shows that the occurrence of Peripheral Vascular Disease determined by Ankle Brachial Index using Hand held Doppler was 12%. The increased duration of diabetes with uncontrolled glycemic status have a significant role in the development of Peripheral Vascular Disease and its complications in diabetic population. The use of Hand held Doppler will aid early diagnosis of critical limb at risk of loss and help to prevent and reduce the high rate of limb loss in diabetic foot ulcer patients.

**KEYWORDS:** Diabetic foot ulcer, Ankle Brachial Index, Hand held Doppler, Peripheral Vascular Disease.