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# An observation into prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer

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**Abstract**
**Aim:** The present study was undertaken to observe the prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer.
**Materials and Methods:** The study recruited 30 patients admitted for diabetic foot ulcer within the age group of 30-60 years 30 and 60 yrs. Patients of either sex were recruited in the study. All participants underwent thorough physical examination. All measurements were performed using standard methods in the literature.
**Results:** Majority of patients belongs to age group 30-40 years. 53.3% are males and 46.6% are females. Majority of the participants are post graduates. Majority of ulcers are in right foot. 40 percentage of cases the underlying cause is foot ware. Nephropathy was found to be significant co morbidity in these patients.
**Conclusion:** The study explained he prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer. Further detailed studies are necessary in this area to understand the association in better way to plan effective treatment strategies.

**Keywords:** diabetes, foot ulcers, peripheral arterial disease

## Introduction
Diabetes is a global health issue and India is being labeled as diabetic capital of the world. It may be due to deficiency of insulin or decrease in the receptor sensitivity. Based on the cause the diabetes was classified into type 1 and type 2 diabetes [1]. Diabetes affects each and every system of the body. It can cause accumulation of fat in the blood vessels and blockage of the blood vessels which clinically called as atherosclerosis. Peripheral arterial disease is most commonly occurring in diabetic patients [2]. It means the patients with diabetes are more risk for diabetes than others. Ischemia of the organ that is being supplied by the artery and further damage of the nerve fibers are most common manifestations of the peripheral arterial disease. Ankle-brachial index is an excellent tool for assessment of these ulcers' status [3]. Bed side patient's ulcer assessment need to be performed regular intervals for adequate management. Though it is well known that the peripheral arterial disease is more common in diabetes, limited studies are there in this area. Hence, the present study was undertaken to observe the prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer.

## Materials and Methods
**Study design:** Observational study
**Sampling method:** Convenient sampling
**Study population:** The study recruited 30 patients admitted for diabetic foot ulcer within the age group of 30-60 years 30 and 60 yrs. Patients of either sex were recruited in the study. Informed consent was obtained from all the participants and confidentiality of data was maintained. Patients with severe complications were excluded from the study. Unwilling participants were excluded from the study. Ulcers other than foot were excluded from the study.

**Data collection:** All participants underwent thorough physical examination. All measurements were performed using standard methods in the literature [4].

**Ethical considerations:** The study proposal was approved by the institutional ethics committee after satisfying the queries adequately. The study followed all the guidelines as per the ICMR guidelines. Written informed consent was obtained from all the parents of the participants before the commencement of the study. Information related to the patients was kept confidential

**Data analysis:** The statistical software SPSS 18.0 version was used to analyze the data. Data was expressed as frequency and percentage.

## Results

Table no 1 presents the demographic data of participants with respect to age (n = 30). Majority of patients belongs to age group 30-40 years. Table 2 presents the demographic data of participants with respect to gender (n = 30). 53.3% are males and 46.6% are females. Table 3 presents the demographic data of participants with respect to education (n = 30). Majority of the participants are post graduates. Table 4 presents the site of ulcer (n = 30). Majority of ulcers are in right foot. Table 5 presents the Trauma, foot ware use and smoking as underlying cause (n = 30). 40 percentage of cases the underlying cause is foot ware. Table 6 presents the Co morbidities associated with peripheral arterial disease (n = 30). Nephropathy was found to be significant comorbidity in these patients.

**Table 1:** Demographic data of participants with respect to age (n = 30)

| Age (Years) | Frequency | Percentage |
|---|---|---|
| 30-40 | 12 | 40 |
| 41-50 | 8 | 26.66 |
| 51-60 | 10 | 33.33 |

Data was presented as frequency and percentage

**Table 2:** Demographic data of participants with respect to gender (n = 30)

| Gender | Frequency | Percentage |
|---|---|---|
| Male | 16 | 53.3 |
| Female | 14 | 46.6 |

Data was presented as frequency and percentage

**Table 3:** Demographic data of participants with respect to education (n = 30)

| Age (Years) | Frequency | Percentage |
|---|---|---|
| 10th | 5 | 16.6 |
| Plus two | 10 | 33.3 |
| Under graduate | 3 | 10 |
| Post graduate | 12 | 40 |

Data was presented as frequency and percentage

**Table 4:** Site of ulcer (n = 30)

| Site of ulcer | Frequency | Percentage |
|---|---|---|
| Left foot | 12 | 40 |
| Right foot | 18 | 60 |

Data was presented as frequency and percentage

**Table 5:** Trauma, foot ware use and smoking as underlying cause (n = 30)

| | Frequency | Percentage |
|---|---|---|
| Trauma | 8 | 26.6 |
| Foot ware | 12 | 40 |
| Smoking | 10 | 33.3 |

Data was presented as frequency and percentage.

**Table 6:** Co morbidities associated with peripheral arterial disease (n = 30)

| | Frequency | Percentage |
|---|---|---|
| Hypertension | 6 | 20 |
| CVA | 4 | 13.33 |
| CAD | 3 | 10 |
| Nephropathy | 10 | 33.33 |
| Retinopathy | 7 | 23.33 |

Data was presented as frequency and percentage.

## Discussion

The present study was undertaken to observe the prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer. Majority of patients belongs to age group 30-40 years. Table 2 presents the demographic data of participants with respect to gender (n = 30). 53.3% are males and 46.6% are females. Majority of the participants are post graduates. Majority of ulcers are in right foot. 40 percentage of cases the underlying cause is foot ware. Nephropathy was found to be significant co morbidity in these patients. Diabetes is a metabolic disease that has adverse effects on each and every system of the body. Peripheral arterial disease is most commonly seen in the diabetic patients. Earlier studies reported that there is high prevalence of development of peripheral vascular disease in the patients with diabetes when compared with other patients [5-8]. In the present study majority of patients has co morbidities that are associated with diabetes. Nephropathy was most common co morbidity in these patients. Smoking, use of foot ware and trauma are the associated risk factors reported by earlier studies and present study confirms the same view as there is significant contribution of these risk factors.

## Conclusion

The study explained he prevalence and risk factors of peripheral arterial disease in diabetic foot ulcer. Further detailed studies are necessary in this area to understand the association in better way to plan effective treatment strategies.

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