

RESEARCH ARTICLE

Study on Health Outcomes in Diabetic Patients - Association Between Diabetic Foot Ulcer and Psychological Distress

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ABSTRACT:

Aim and Objectives: The main aim of the study is to compare the levels of anxiety and depression, psychological distress between persons with diabetes with a history of foot ulcer, persons without history of foot ulcer and persons without diabetes. **Materials and Methods:** This study which includes prospective study. The study was done in a five different general medicine department and were carried out for a period of 6 months on both in-patient and out-patients in general medicine department. Chi-square is used to differentiate the incidence of anxiety and depression between patients with diabetic foot ulcer and diabetes without foot ulcer. **Result and Discussion:** A total of 90 patients were screened. Out of selected 90 patients, the age of 20-29 years 5(6%) were males and females, in the age of 30-39 years 14(15%), in the age of 40-49 years 24(27%), in the age of above 50-59 years 45(50%) and in the age of 60 years 2(2%) were found. **Conclusion:** In this study the Abnormal anxiety and depression levels are more in diabetic foot ulcer when compared to those with diabetes. There was significant association found between diabetes, diabetic foot ulcer and psychological distress.

KEYWORDS: Hads-A, Hads-D.

INTRODUCTION:

Foot ulceration is a common and disabling complication of diabetes, and the lifetime risk of a person with diabetes developing this complication may be as high as 25%⁽¹⁾. A history of previous diabetic foot ulceration increases the risk for new ulceration⁽²⁾.

Foot ulcers precede approximately 85% of all diabetic lower extremity amputations, and the mortality following amputation is high^(3,4). Even among people with their first diabetic foot ulcer, one-third suffer from clinical depression^(5,6). In order to overcome some of these shortcomings, the aim of this study was to compare symptom levels of anxiety and depression between.

- i) Persons with diabetes who reported a history of foot ulcer,
- ii) Persons with diabetes without a history of foot ulcer, and
- iii) Persons without diabetes^(7,8,9).

MATERIALS AND METHODS:

The study was designed to be a prospective study and carried over a period of 6 months. The present study was conducted in General Medicine department of a Tertiary Care Hospital, was carried out in ESI Hospital, Ayanavaram. The hospital is having capacity of 2000 beds for in-patient hospitalization along with supported qualified staff. The hospital is well equipped, and service provided to patients including all the biochemical, clinical pathology and microbiology investigations facilities are available. Expert guidance of clinical pharmacy professionals, senior and junior physicians of the departments selected for the study in the hospital. It was permitted to utilize the hospital facilities to make a follow-up prescription, in the selected departments.

Patients were intimated about use of patient records, and all the health care professional were also informed about the project work. In this study all the data were recorded in proforma which includes the information's regarding patients detail patients detail such as name, age, sex, height, weight, B.M.I, IP number, social history, past medical and medication history, family history, laboratory investigations of patients with diabetic foot ulcer, diabetic without foot ulcer and non- diabetic patients. Total 90 persons, of whom 30 did not have diabetes, 30 had diabetes without a history of foot ulcer and 30 had diabetes with a history of foot ulcer. The parameters are FBS, PPBS are measured. Hospital Anxiety and Depression Scale (HADS) were used to compare the anxiety and depression levels in 3 different condition patients.

RESULTS AND DISCUSSION:

A total of 90 patients were taken for the study. In this the age of 20-29 years 5(6%) were males and females, in the age of 30-39 years 14(15%), in the age of 40-49 years 24(27%), in the age of above 50-59 years 45(50%) and in the age of 60 years 2(2%) were found. (Table 1)

Table 1: Age distribution in population study

AGE IN YEARS	NO. OF PATIENTS (n=90)	% OF PATIENTS
20 – 29	2	2.2%
30 – 39	9	10%
40 – 49	20	22.2%
50 – 59	51	56.6%
Above 60	8	8.9%

A total of 90 patients were taken for the study. In this, 49 (54%) were males and 41 (46%) were females. (Table 2)

Table 2: Gender distribution

GENDER	NO.OF PERSONS	PERCENTAGE
MALE	49	54%
FEMALE	41	46%

A total of 90 patients were taken for the study. In this, out of 49(54%) were males, 16(33%) with normal weight and 24(49%) with overweight and 9(18%) with obese. And 41(46%) were females, 14(34%) with normal weight and 21(51%) with over weight and 6(15%) with obese. (Table 3)

Table 3: B.M.I of The Population

DISTRIBUTION	MALES (NO.OF PERSONS) (49)	IN (%)	FEMALES (NO. OF PERSONS) (41)	IN (%)
NORMAL	16	33%	14	34%
OVER WEIGHT	24	49%	21	51%
OBESE	9	18%	6	15%

In a total of 49 male patients, 20(41%) were smokers and 16(33%) were alcoholic and 13(26%) were smokers and alcoholic. None of the Female patients were in this category. (Table 4)

In a total of 90 patients, 49(54%) were males and 41(46%). In this 19(39%) were males and 11(27%) were females with Diabetes with foot ulcer. And 22(45%) were males and 8(19%) were females with diabetes. And 8(16%) were males and 22(54%) were females with non-diabetes. (Table 5)

A total of 90 patients, Out of these, 5(10%) were males and 2(5%) were females affected with angina. And 2(4%) were males and 2(5%) were myocardial infarction. And 4(9%) were males and 2(5%) were females affected with stroke. And 5(10%) were males no females were affected with Ischemic Heart disease. And 33(67%) of males and 35(85%) of females are not affected with any cardiovascular problems. (Table 6)

Out of 49(54%) of male patients 19(39%) with diabetes and foot ulcer, 0(0%) were in normal level of anxiety for 4(21%) were in borderline abnormal and 15(77%) were in abnormal levels. 22 (45%) with diabetes, 5(23%) were in normal level of anxiety for 11(50%) were in borderline abnormal and 6(27%) were in abnormal levels. 8(16%) with non-diabetes, 6(75%) were in normal level of anxiety for 1(13%) were in borderline abnormal and 1(12%) were in abnormal levels. (Table 7)

Out of 41(46%) of female patients 11(27%) with diabetes and foot ulcer, 0(0%) were in normal level of anxiety for 4(36%) were in borderline abnormal and 7(64%) were in abnormal levels. 8(20%) with diabetes, 2(25%) were in normal level of anxiety for 2(25%) were in borderline abnormal and 4(50%) were in abnormal levels. 22(53%) with non-diabetes, 16(73%) were in normal level of anxiety for 4(18%) were in borderline abnormal and 2(9%) were in abnormal levels. (Table 8)

Out of 49(46%) of female patients, 19(39%) with diabetes and foot ulcer, 1(5%) were in normal level of anxiety for 8(43%) were in borderline abnormal and 10(52%) were in abnormal levels. 22(45%) with diabetes, 11(50%) were in normal level of anxiety for 7(32%) were in borderline abnormal and 4(18%) were in abnormal levels. 8(16%) with non-diabetes, 6(75%) were in normal level of anxiety for 1(13%) were in borderline abnormal and 1(12%) were in abnormal levels. (Table 9)

Out of 41(46%) of female patients, 11(27%) with diabetes and foot ulcer, 0(0%) were in normal level of anxiety for 3(27%) were in borderline abnormal and 8(73%) were in abnormal levels. 8(20%) with diabetes, 4(50%) were in normal level of anxiety for 3(38%) were in borderline abnormal and 1(12%) were in abnormal levels. 22(53%) with non-diabetes, 14(64%) were in normal level of anxiety for 6(27%) were in borderline abnormal and 2(9%) were in abnormal levels. (Table 10)

ABBREVIATIONS:

HADS	-	Hospital Anxiety and Depression Scale
HADS-A	-	Anxiety subscale of HADS
HADS-D	-	Depression subscale of HADS
FBS	-	Fasting Blood Sugar
PPBS	-	Post Prandial Blood Sugar
MDD	-	Major depressive disorder

TABLE 4: SOCIAL HABITS: SMOKING AND ALCOHOL

SOCIAL HABITS	NO. OF PERSONS (49)	PERCENTAGE
SMOKING	20	41%
ALCOHOL	16	33%
SMOKING+ ALCOHOL	13	26%

TABLE 5 MEDICAL CONDITIONS OF THE POPULATION

DM WITH FOOT ULCER	IN (%)	DM WITHOUT FOOT ULCER	IN (%)	NON-DIABETES
19	39%	22	45%	8
11	27%	8	19%	22

TABLE 6 CARDIOVASCULAR DISEASES FOUND IN POPULATION STUDY

GENDER	TYPES OF DISEASE									
	AP	IN (%)	MI	IN (%)	STORKE	IN (%)	IHD	IN (%)	NIL	IN (%)
MALE	5	10%	2	4%	4	9%	5	10%	33	67%
FEMALE	2	5%	2	5%	2	5%	0	0%	35	85%

TABLE 7 NUMBER OF MALES FOR ANXIETY PATIENTS IN MEDICAL CONDITIONS

MEDICAL CONDITIONS	NORMAL	IN (%)	BODERLINE ABNORMAL	IN (%)	ABNORMAL	IN (%)
DIABETES WITH FOOT ULCER	0	0%	4	21%	15	79%
DIABETES WITHOUT FOOT ULCER	5	23%	11	50%	6	27%
NON-DIABETES	6	75%	1	13%	1	12%

TABLE 8 NUMBER OF FEMALES FOR ANXIETY PATIENTS IN MEDICAL CONDITIONS

MEDICAL CONDITIONS	NORMAL	IN (%)	BODERLINE ABNORMAL	IN (%)	ABNORMAL	IN (%)
DIABETES WITH FOOT ULCER	0	0%	4	36%	7	64%
DIABETES WITHOUT FOOT ULCER	2	25%	2	25%	4	50%
NON-DIABETES	16	73%	4	18%	2	9%

TABLE 9 NUMBER OF MALES FOR DEPRESSION PATIENTS IN MEDICAL CONDITIONS

MEDICAL CONDITIONS	NORMAL	IN (%)	BODERLINE ABNORMAL	IN (%)	ABNORMAL	IN (%)
DIABETES WITH FOOT ULCER	1	5%	8	43%	10	52%
DIABETES WITHOUT FOOT ULCER	11	50%	7	32%	4	18%
NON-DIABETES	6	75%	1	13%	1	12%

TABLE 10 NUMBER OF FEMALES FOR DEPRESSION PATIENTS IN MEDICAL CONDITIONS

MEDICAL CONDITIONS	NORMAL	IN (%)	BODERLINE ABNORMAL	IN (%)	ABNORMAL	IN (%)
DIABETES	0	0%	3	27%	8	73%
DIABETES WITHOUT FOOT ULCER	4	50%	3	38%	1	12%
NON-DIABETES	14	64%	6	27%	2	9%

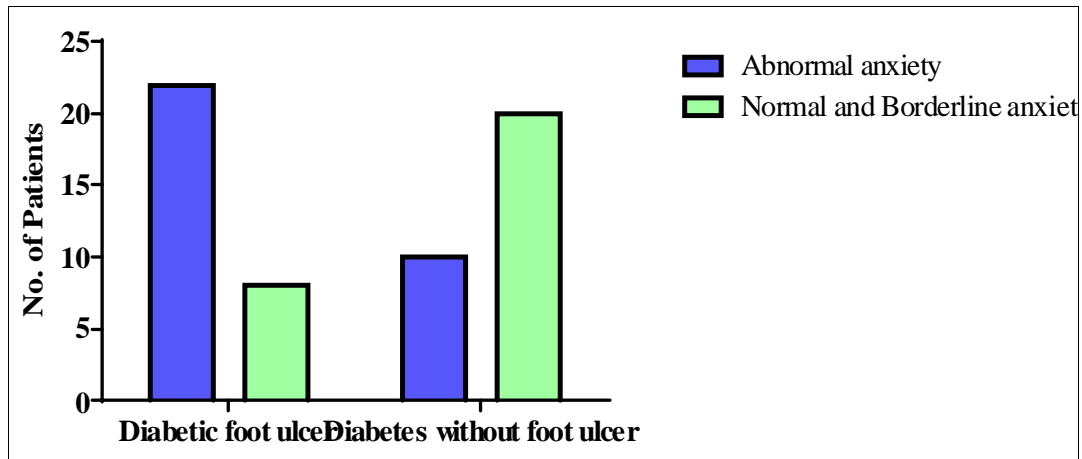


Fig. 1. Incidence of anxiety in patients with and without diabetic foot ulcer

Table Analyzed		Incidence of abnormal anxiety of patients with diabetic foot ulcer and diabetic patients.		
Chi-square				
Chi-square, df	9.643, 1			
Z	3.105			
P value	0.0019			
P value summary	**			
One- or two-tailed	Two-tailed			
Statistically significant? (alpha<0.05)	Yes			
Data analyzed	Abnormal anxiety	Normal and Borderline	Total	
Diabetic foot ulcer	22	8	30	
Diabetes without foot ulcer	10	20	30	
Total	32	28	60	

The p value was found to be 0.0019, hence, there is a significant difference in the incidence of anxiety between patients with diabetic foot ulcer and diabetes without foot ulcer.

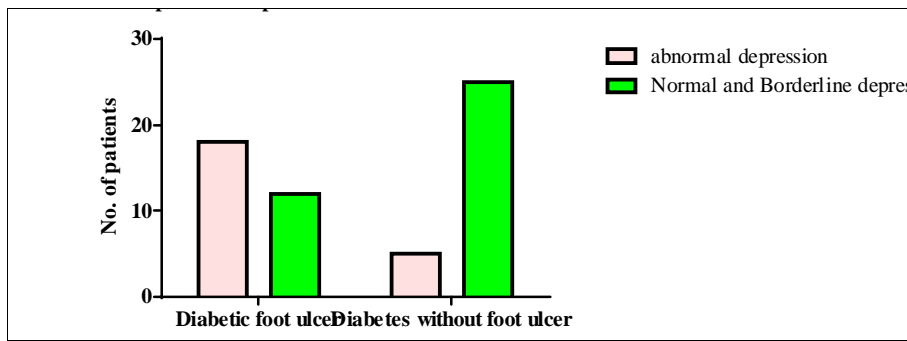


Fig. 2. Incidence of depression in patients with and without diabetic foot ulcer

Table Analyzed				
Chi-square				
Chi-square, df	11.92, 1			
Z	3.452			
P value	0.0006			
P value summary	***			
One- or two-tailed	Two-tailed			
Statistically significant? (alpha<0.05)	Yes			
Data analyzed	abnormal depression	Normal and Borderline depression	Total	
Diabetic foot ulcer	18	12	30	
Diabetes without foot ulcer	5	25	30	
Total	23	37	60	

The p value was found to be 0.0006, hence, there is a significant difference in the incidence of depression between patients with diabetic foot ulcer and diabetes without foot ulcer.

CONCLUSION:

The Abnormal anxiety and depression levels are more in diabetic foot ulcer when compared to those with diabetes. There was significant association found between diabetes, diabetic foot ulcer and psychological distress. Among diabetes, a history of foot ulcer had significant negative impact on psychological distress. Patient counselling is given which is beneficial to improve the psychological conditions. And Psychotherapies like Cognitive therapy and behavioral

therapy is beneficial to individual gradually confront and tolerate fearful situations in a controlled, safe environment.

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