Presentation and outcome of patients with diabetic foot ulcers in tertiary care hospital

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Background

Foot ulcers are common in patient with diabetes, especially in lower resource countries and are one of the significant causes of high morbidity and can lead to lower extremity amputation if left untreated.

Objective

To observe the presentation and outcome of diabetic foot ulcer in hospitalized patients.

Methodology

This study was carried out from April 2016 to November 2016, in the Medical ward at Baqai Institute of Diabetology and Endocrinology, (BIDE), a tertiary care diabetes centre in Karachi - Pakistan. Ethical approval was obtained from Institutional Review Board (IRB) of BIDE. Patients were recruited after taking signed informed consent. Patients with diabetic foot ulcer (DFU) were classified according to University of Texas (UT) Classification of Diabetic Foot and those with infection were categorised according to Infectious Diseases Society of America (IDSA) classification. Details of demography, anthropometry, medical history and progress of healing were collected on structured software [Health Management System, (HMS)] through one to one interviews conducted by physician. Biochemical parameters along with culture specimens of tissue, pus and/or bone were taken. Bacterial isolates were identified and their antimicrobial susceptibility pattern was established. Ankle Brachial Index (ABI) was performed and neurothesiometer evaluation was done by trained foot care assistants. Outcome was recorded as complete healing, major and minor amputations, lost to follow up or expired. SPSS version 20 was used for data analysis.

Results

Baseline characteristics

Variable	Female	Male	Overall	P-value
n	29	88	117	
Age	54.38±11.81	57.09±11.5	56.42±11.59	0.276
BMI	25.77±6.04	24.16±5.4	24.56±5.58	0.179
Duration of Diabetes (years)	14.41±6.23	12.9±10.48	13.27±9.6	0.463
Duration of Wound (days)	114.82±68.50	98.96±73.28	102.71±72.13	0.370
Systolic BP	130±17.32	127.5±14.24	128.12±15.02	0.439
Diastolic BP	79.31±7.04	77.5±10.09	77.95±9.43	0.372
Temperature	98.97±1.43	98.82±2.02	98.85±1.89	0.717
Pulse	87.69±10.45	87.83±11.73	87.79±11.39	0.955
HbA1c	10.05±2.25	10.24±2.26	10.19±2.25	0.714
Hb	9.62±1.76	10.6±1.94	10.36±1.94	0.019
TLC	15.18±6.27	14.9±6.72	14.97±6.59	0.845
PLT	348.32±142.01	310.38±128.01	319.54±131.9	0.186
Urea	50.7±31.11	45.79±29.42	46.95±29.76	0.456
Creatinine	1.5±1.2	1.34±0.59	1.38±0.77	0.358
ABI (right)	1.05±0.34	1.14±0.47	1.12±0.44	0.325
ABI (left)	1.08±0.39	1.16±0.48	1.14±0.46	0.453
Duration of hospital stay (hours)	124.14±121.38	109.1±91.75	112.83±99.56	0.483
VPT (right)	42.14±9.07	43.56±7.73	43.21±8.07	0.424
VPT(left)	40.79±9.6	43.34±7.78	42.69±8.31	0.161
Diagnosis				
NDF	23(79.3%)	78(88.6%)	101(86.3%)	0.205
NIDF	6(20.7%)	10(11.4%)	16(13.7%)	

Frequency of Comorbidity

Classification of Foot Ulcer by IDSA Criteria

Frequency of isolated organism for culture

University of Texas Classification

Grade	Without amputation	Amputation	Overall	P-value
Grade 1				
Stage A	2(2.11%)	0(0%)	2(1.71%)	N/A
Stage B	2(2.11%)	0(0%)	2(1.71%)	
Stage C	1(1.05%)	0(0%)	1(0.85%)	
Stage D	1(1.05%)	0(0%)	1(0.85%)	
Grade 2				
Stage A	2(2.11%)	0(0%)	2(1.71%)	0.022
Stage B	34(35.79%)	2(9.09%)	36(30.77%)	
Stage C	4(4.21%)	0(0%)	4(3.42%)	
Stage D	2(2.11%)	2(9.09%)	4(3.42%)	
Grade 3				
Stage A	23(24.21%)	6(27.27%)	29(24.79%)	0.068
Stage B	2(2.11%)	1(4.55%)	3(2.56%)	
Stage C	7(7.37%)	3(13.64%)	10(8.55%)	
Stage D	12(12.63%)	6(27.27%)	18(15.38%)	
Grade 4				
Stage A	0(0%)	0(0%)	0(0%)	0.058
Stage B	3(3.16%)	0(0%)	3(2.56%)	
Stage C	0(0%)	2(9.09%)	2(1.71%)	
Stage D	95(100%)	22(100%)	117(100%)	

Outcomes of patients with foot ulceration

Conclusion

Delayed presentation and the most of severe category infected DFU were observed in study. Significant number of MDR and MRSA isolates is one of the major evolving problems in a resource constraint society, such as Pakistan and multidisciplinary approach can prevent patient with infected diabetic foot ulcer from major amputation.