Research Paper Medical Science

A Study of Factors Effecting The Management of Diabetic Foot

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ABSTRACT *Diabetic foot is a common complication arising in diabetics. Foot disorders such as ulceration, infection and gangrene are the leading causes of hospitalization in them. Aggressive and courageous approaches on health team basis are mandatory to avoid unnecessary suffering, loss of limb and even death. This study is done to ascertain the role of hospital admission, aggressive and early debridement on healing of diabetic foot with minimal disability and avoiding major amputations*

KEYWORDS : Diabetic foot, Diabetic retinopathy, Neuropathy, Vasculopathy, Amputation.

INTRODUCTION:-
The knowledge about Diabetes mellitus is important because of its high prevalence. As the "Diabetic Capital of the world" India, with its large share of Diabetic persons has an uphill task to care for its wide population.

The factors effecting the management are
1. Socio demographic characteristics like age, sex, occupation and education etc;

2. Type of Diabetes i.e. Type1 or Type 2.

3. Duration of Diabetes

4. Control of diabetes.

5. Associated Co morbidities like BMI, hypertension, retinopathy, neuropathy, vasculopathy etc;

CRITERIA FOR DIAGNOSIS OF DIABETES MELLITUS:
1) Symptoms of Diabetes plus RBS >200mg/dl (>11.1mmol/L) or

2) Fasting blood glucose>126mg/dl (7.0mmol/L) or

3) 2- hour plasma glucose>200mg/dl during an oral glucose tolerance test or

4) HbA1C>6.5%.

MATERIALS AND METHODS:
100 Patients with diabetes who presented with foot lesions to Department of General surgery, Osmania general hospital, Hyderabad in outpatient department between November 2013- October 2015 were included in this study.

After enrollement, a detailed clinical history was taken. This is followed by a detailed examination of patient with particular reference to lesion of foot.

The presence of associated arterial disease was determined by a clinical examination of lower limb pulses. The presence of neuropathy was ascertained by means of a monofilament test.

Patients who had associated medical complications, poor control of sugar levels or foot ulcers Grade 2 and above were selected for inpatient hospital management.

Patients with diabetes for greater than 5 years and who were symptomatic were screened for retinopathy by fundus examination and visual acuity examinations.

A medical treatment was directed towards obtaining a euglycemic status and maintain it. All ulcers are inspected daily. Patients with Grade 0 and 1 were inspected and treated in outpatient department

Patients whose infections have failed to respond to treatment or obvious gangrene were subjected to amputation at appropriate level.

OBSERVATIONS
The observations were tabulated and analysed. They are given below;
SEX RATIO:
The male (70) and female ratio in our study was 2.34:1

Sex	Number	Percentage
Male	70	70
Female	30	30

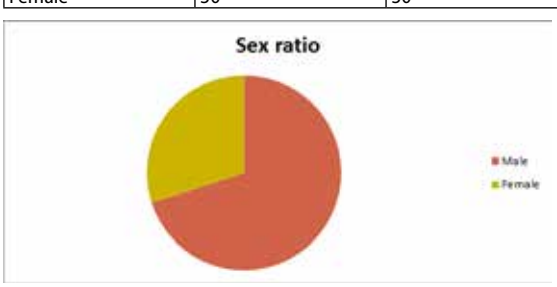

Figure no 1

TYPE OF DIABETES:
13% of the patients had Type1 diabetes (IDDM), the rest 87%falling in the Type2 (NIDDM).

Type	Number	Percentage
IDDM	13	13%
NIDDM	87	87%

DURATION OF DIABETES:
Of the 100 patients in the study, majority had diabetes for more than 5 years. The results are as fallow below.

Duration	Number	Percentage
<5years	35	35%
5-10years	30	30%
>10 years	22	22%
Intermediate	13	13%

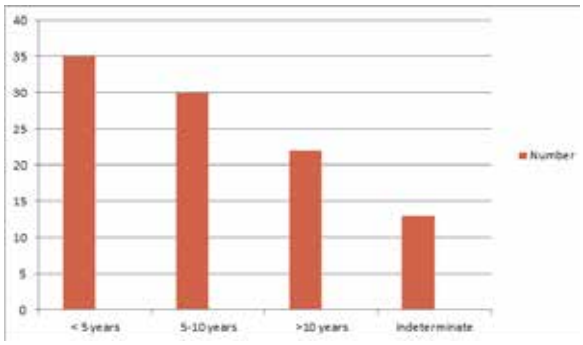

Figure No 2

CONTROL OF DIABETES:

Control	Good	Moderate	Poor
Number	50	35	15
Percentage	50	35	15

ADMISSION TO HOSPITAL

Category	Number	Percentage
In patient	75	75%
Out patient	25	25%

TYPE OF ULCER:

Figure No 3, Chronic nonhealing diabetic ulcer

Type	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
No. Of patients	6	14	27	28	18	7
Percent-age	6	14	27	28	18	7

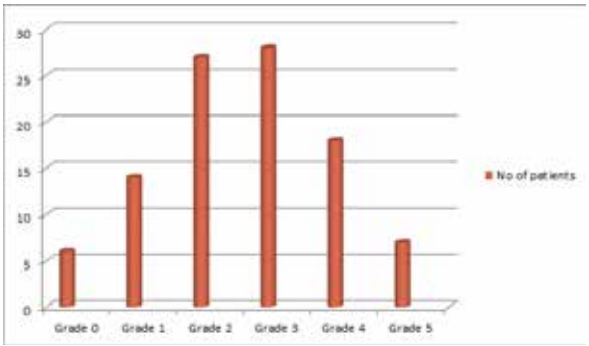

Figure no 4

DURATION OF ULCER:- In our study majority of patients had a history of chronicity.62 patients had history of ulcerations for more than 3 months and remaining 38 presented with acute ulcerations.

Type	Number	Percentage
Acute	38	38%
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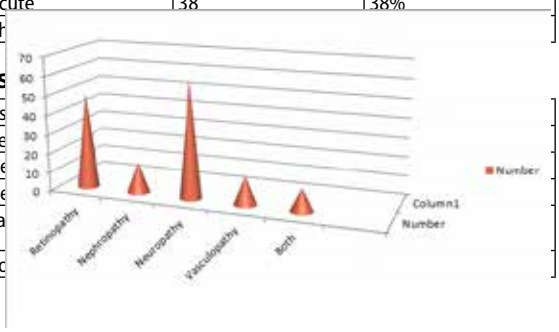

Figure No 5

LOCAL CARE:
75% of our patients had surgical debridement daily as the sheet anchor of treatment. Only 6 patients did not get any form of surgical intervention. One patient underwent Fascitomy.

Type	Number of Patients
SSG	23
Flap	2

TYPE OF ORGANISMS OBTAINED ON CULTURE.

Gram positive	Gram negative
58	68
58%	68%

DURATION OF LOCAL CARE
This was dependent on the type of ulcer, the type of antibiotic used and also on control of diabetes and other risk factors like vascular disease.

Duration	No of patients	percentage
< 4 wks	37	37%
4 -8 wks	45	45%
>8 wks	18	18%

AMPUTATIONS: 40 patients in our study required some form of amputation.

Type of Amputation	Number of patients
Major	14
Minor	26

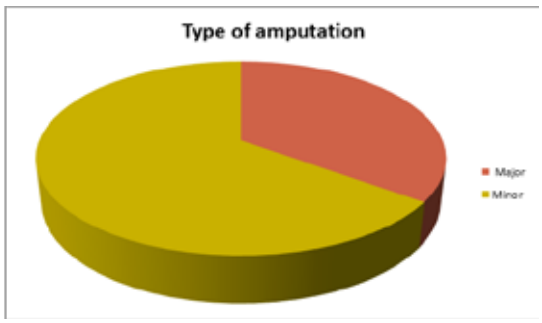

Figure No 6

Figure No 7, Below knee Amputation

MORTALITY:
10 patients died during the course of hospital treatment.

DISCUSSION:-
In our study there is significance difference in the male, female ratio of the occurrence of diabetic ulcers. A higher ratio of the males may be related to many other associated medical causes like hypertension, coronary artery disease etc;

Confirming with major studies worldwide diabetic foot ulcers have been more prevalent in patients with NIDDM (87%) which is also true with this study (90%).In our series of the 50 patients who had good control of diabetes 10 patients(20%) did not have satisfactory healing of the ulcer, also in these patients 16(32%) had associated complications like retinopathy and nephropathy.

In our study, it isclearly seen that the duration of diabetes had in impact on foot ulcers. As shown in epidemiological surveys of diabetic foot problems in Stockholm, foot ulcers were found in about 54.9% of patients who had diabetes for more than 5 years .This is mainly because the ulcer is related to the occurrence of neuropathy or vasculopathy.It is also seen that (13%) of the patients presented with foot ulcer to hospital were later diagnosed as diabetics.

There is enough debate whether the control of diabetes is related to the healing of ulcer .Cahill et al (1976) conclude that there is good evidence that micro vascular complications of diabetescan be reduced by reduction of blood glucose concentration.

Neuropathy which is seen in more than 50% of diabetics of long standing duration (pirate 1978) is considered to be single most major cause of ulceration in a diabetic patient .In our study taking superficial SENSATION AS THE INDICATOR OF NEUROPATHIC INVOLVEMENT IT WAS found that 61% of the patients had some form of neuropathy.

Daily surgical debridement is the mainstay in the treatment of diabetic ulcers, and was carried out in nearly 75% of patients.

RESULTS:-
1)70% were male and 30% were female patients.

2) 13% of the patients had Type1 (IDDM), the rest 87% falling in Type 2(NIDDM) category.

3) Majority had diabetes for more than 5 years.

4) Of the total number of 100 patients in study, 75(75%) had to be admitted as they had ulcers more than Grade 2 and also coexistent uncontrolled diabetes in some of them.

5) 25% were treated as op patients and it was made sure that they came for follow up promptly.

6) In the study 67% had a history of ulcer (either in same foot or in the opposite foot).

7) 62% had a History of ulcerations for more than 3 months and remaining 38% presented with acute ulcerations.

8) 50% were found to have Retinopathy.

9) 16% had evidence of Nephropathy.

10) 12%were found have both.

11) 75% of our patients had surgical debridement as the sheet anchor treatment.

CONCLUSION:-
The treatment of these patients as a casual out-patient should be discouraged, as they need rest, proper control of Diabetes and constant supervision in management of this condition.

Ulceration in diabetic foot is a multifaceted problem due to underlying ischemia, neuropathy and infection etc;

Patient education has major role in treatment and should include instruction of foot hygiene, daily inspection, proper footwear and the necessity of prompt treatment of new lesions.

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Conflict of Interest – No conflict of interest

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