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Research Paper

A Study of 30 Cases of Diabetic Foot

Medical Science

KEYWORDS : diabetic foot

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ABSTRACT

Objective:

Diabetic foot is commonest complication of diabetes mellitus. Therefore, this study was undertaken to salvage the limb in diabetic patient with help of various modalities of treatment available to our hospitals, to prevent the recurrence of such lesion by careful follow up and rehabilitation of patient once ulcer is healed and after major and minor amputation.

Methods:

The study was conducted in 30 patients of diabetic foot admitted in surgical wards of general hospital. After admission all patients were studied according to proforma. Proforma was designed to record the history, chief complain, past history, family history, personal history, obstetric and menstrual history (in case of female patient), physical examination local examination, neurological examination, regional lymph node examination, investigations and management.

Results:

Out of 30 patients with diabetic foot, 19 (63.3 %) were males while remaining 11 (36.7 %) were females. Majority of patients (59.99%) belonged to the middle age group. 80% patients were of lower socio-economic class. Average duration of diabetes was 7.5 years. Smoking was far more common in males than in females. Ulcer was the commonest presenting symptom. Neuropathy was leading cause of most diabetic foot lesions. The forefoot lesion was more common. Common organism isolated was staphylococcus aureus. Improvement in foot lesion was found only after smooth control of diabetes mellitus. Patient with mild to severe infection were treated with systemic antibiotics. Vasodilator, pentoxifyline and nylidrine were used in 10 patients but no any remarkable and noticeable effect over foot lesion was found. Daily dressing was carried out. Surgical management included meticulous debridement, decompression, toe amputation and above knee amputation. Hospital stay was for average 40 days. Patients were discharged with healed ulcer or small healing ulcer. Those patients with healed ulcer were discharged with pressure distributing footwear. Those with healing ulcer asked to come for follow up twice weekly ulcer healed in 20-30 days interval. Patients with healed ulcer were followed at weekly interval in first month then monthly for three months and then every 3 months. One patient discharged after healing of ulcer after ray excision was admitted with severe infection at heal and lower leg BK amputation was done.

Conclusion:

The complications of diabetes predispose to development of foot lesions. Middle aged males of low socio-economic levels are more affected. Ulceration over forefoot is more common. Neuropathic ulcers are more common. Staphylococcus aureus is the most common organism isolated. Vasodilators and lumbar sympathectomy do not improve circulation significantly in diabetic foot and leg due to microangiopathy and neuropathy. Long term use of pentoxifyline can reduce vascular complication of diabetes. Vascular reconstructive surgery has a poor prognosis because of multi segmental occlusion characteristic of diabetic atherosclerosis. Good control of diabetes, use of proper antibiotics, intime gentle and thorough debridement and daily dressing can save the patient from unnecessary destructive surgery. Amputation is only done for gangrene or severe fulminant, uncontrolled infection and is the last resort. For rehabilitation all efforts must be made to save the knee joint. Education and advise to the patients regarding prosthesis and rehabilitation is must for all amputed patients. Educating the patient about foot care and prescribing special pressure shoe to patient lead to decrease in recurrence rate.

INTRODUCTION

Diabetic foot is commonest complication of diabetes mellitus. Numerous risk factors such as arterial disease in leg, peripheral neuropathy, infection, trauma, high plantar pressure, poor glycemic control have been associated with diabetic foot lesion. Association between diabetes and symptoms in limb was first recognized by John Rollo (1798) whereas association between diabetic foot ulceration, neuropathy and vascular disease was first recognized by Pryce (1887). It is not totally curable or preventable but with positive approach motality and morbidity due to diabetic foot can be reduced [1]. Therefore, this study was undertaken to salvage the limb in diabetic patient with help of various modalities of treatment available to our hospitals, to prevent the recurrence of such lesion by careful follow up and rehabilitation of patient once ulcer is healed and after major and minor amputation.

MATERIAL AND METHODS

The study was conducted in 30 patients of diabetic foot admitted in surgical wards of general hospital. After admission all patients were studied according to predetermined proforma. Proforma was designed to record the history, chief complain, past history, family history, personal history, obstetric and menstrual history (in case of female patient), physical examination , local examination, neurological examination, regional lymph node examination, investigations and management.

RESULTS AND DISCUSSION

Analysis of 30 patients with diabetic foot was carried out.

Demographic Details of Patients:

Out of 30 patients, 19 (63.3 %) were males while remaining 11 (36.7 %) were females. The higher incidence in males could be due to unhygienic habit, smoking and trauma. Majority of patients (59.99%) belonged to the middle age group. In study done by Sami K. Asfar, Munira and Abdallah age of patient ranged from 30-83 years with average age of 59.8 years [2].

In our study 59.99 % patients were of middle age. 80% patients were of lower socio-economic class and most of males were doing occupation requiring labor whereas all females were housewife. It does not mean that diabetic foot lesion does not affect higher class people because this study was conducted in general hospital.

Duration of Diabetes Mellitus:

Average duration of diabetes was 7.5 years. In study of Griffith and Jaffery average duration of diabetes was 12 years [3]. This difference might be due to late detection of diabetes in our country. Severity of lesion correlate with severity and duration of diabetes.

Smoking:

Smoking was far more common in males than in females.

Presenting Features, Types and Sites of Lesion:
Ulcer was the commonest presenting symptom. The other presenting symptoms were abscess, blisters, cellulites, claudication, gangrene and neurological symptoms. Neuropathy was leading cause of most diabetic foot lesions. Majority of patients who entered the hospital because of diabetic foot lesions do so because of ulceration secondary to painless trauma. Ischemia and mixed element also contributes to foot lesion. The forefoot lesion was more common due to majority of patients were neuropathic leading to development of ulcer at high pressure point below first metatarsal head. This was due to lack of hygiene, lack of attention and trauma.

Organism:
Common organism isolated was staphylococcus aureus. According to study done by Sami K. Asfar, Mulina and Abdallah common organisms isolated were staphylococcus aureus, Beta hemolytic streptococci, bacillus pyoceneus, klebseilla, E coli. Out of this staphylococcus aureus was the commonest one, present series correlates with this study [2].

X-ray foot:
It was taken for all the patients. 5 patients showed definitive changes individually.

Conservative Management:
Control of diabetes was achieved by giving insulin regulated by urine and blood sugar. Improvement in foot lesion was found only after smooth control of diabetes mellitus.

Patients with mild to severe infection were treated with systemic antibiotics. 14 patients were given ampicillin + cloxacillin + metrogyl + gentamicin. 9 patients were given oral cephalosporin. One patient was switched over to augmentin later on. 2 patients were treated with parenteral crystalline penicillin. All patients showed good results. Study of Gerards V, Schiewe U, Gerards HH, Machka K, Hobel Meister W in 191 patients with amoxicillin clavulanic acid, average duration of treatment was 15 days (infection controlled) or improvement was observed in 76% cases [4]. Vasodilator, pentoxifyline and nylidrine were used in 10 patients but no any remarkable and noticeable effect over foot lesion was found.

Daily dressing was carried out.
Surgical Management:
Meticulous debridement was performed in case where ulcer was superficial to deep fascia and on dorsum of foot and lower leg.

Decompression of fascial compression was done in which infection deep to deep fascia. Toe amputation was done in cases which presented with gangrene of toe. One patient with rapidly extending cellulites with gas shadow in soft tissue of leg underwent above knee amputation. Above knee amputation was performed in one patient with infective gangrene up to knee joint. 16 patients infection were under control. Rest of patient with persistent discharge from wound repeated debridement under general anaestesia was done. 6 patients wound developed healthy granulation tissue with minimal pus discharge split thickness graft planned. 10 patients managed with twice daily dressing healed by scarring. Three ray excision was done. 2 patients with uncontrolled infection and resistant progressive ulcer underwent below knee amputation. Patient with resistant mixed ulcer also underwent below knee amputation.

Hospital stay:
Hospital stay was for average 40 days. According to Bridge and Edwin most of patients with diabetic foot lesion require hospital stay for more than one month [5].

Follow Up:
Patients were discharged with healed ulcer or small healing ulcer.

Those patients with healed ulcer were discharged with pressure distributing footwear. Those with healing ulcer asked to come for follow up twice weekly ulcer helaed in 20-30 days interval. Patients with healed ulcer were followed at weely interval in first month then monthly for three months and then every 3 months. One patient discharged after healing of ulcer after ray excision was admitted with severe infection at heal and lower leg BK amputation was done.

CONCLUSION
Diabetes mellitus can not be prevented or reversed. Good control of blood sugar does not always prevent diabetic complication. These complications of diabetes predispose to development of foot lesions. Middle aged males of low socio-economic levels are more affected. This is due to lack of hygiene and increased susceptibility to trauma. Ulceration over forefoot is more common. Both feet are equally affected. Neuropathic ulcers are more common. Staphylococcus aureus is most common organism isolated. Ulcer is the most common presenting symptom. Duration of diabetes rather than acute phase severity predispose to development of diabetic foot. Vasodilators did not seem to benefit patient in my study. Vasodilators and lumbar sympathectomy do not improve circulation significantly in diabetic foot and leg due to microangiopathy and neuropathy. Long term use of pentoxifyline can reduce vascular complication of diabetes. Vascular reconstructive surgery has a poor prognosis because of multi segmental occlusion characteristic of diabetic atherosclerosis. Good control of diabetes, use of proper antibiotics, intime gentle and thorough debridement and daily dressing can save the patient from unnecessary destructive surgery. Functional nonpainful extremity should be the goal. Amputation is only done for gangrene or severe fulminant, uncontrolled infection and is the last resort. For rehabilitation all efforts must be made to save the knee joint. Since we can not totally prevent the occurrence of vascular disease and neuropathy the major goal is to protect the vulnerable foot from trauma and other complication. Education and advise to the patients regarding prosthesis and rehabilitation is must for all amputed patients. Educating the patient about foot care and prescribing special pressure shoe to patient lead to decrease in recurrence rate.

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