DIABETIC FOOT: MANAGEMENT PROBLEMS IN OUR POPULATION

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ABSTRACT
Objective: To find out the factors affecting the management of diabetic foot in our population.
Study Design: Case series.
Setting & Duration: Department of Surgery, Baqai Medical University and Korangi Surgical Clinic, Karachi from May 2006 to May 2008.
Methodology: A total of 112 patients of all age groups who were diagnosed as diabetics and managed were included in the study. Final group comprised of one hundred patients in this study. Detailed history of diabetes and diabetic foot ulceration were recorded and careful clinical examination including protective sensation and vascular assessment. Treatment policy divided into patient education program and intensive surgical management of diabetic foot.
Results: Amongst the total 100 patients, 76 were male and 24 were female. Average duration of diabetes was 10 years. 39% healed completely, 27% had minor amputations, 10% had major amputation, 22% disappeared from treatment, 2% died, 9% had new problem, 7% needed further surgery.
Conclusion: Awarness about foot care in diabetics is lacking and education is needed in this area.

KEY WORDS: Diabetic Foot, Diabetes Mellitus, Diabetic Foot Ulcer, Limb Amputation, Foot Salvage

INTRODUCTION

Diabetic foot disease is a major health problem, which concerns 15% of the 200 million patients with diabetes worldwide. Major amputation, above or below knee, is a feared complication of diabetes and it increases the morbidity and mortality and reduces the patients quality of life.[1] Mortality following amputation ranges from 13% to 40% at 1 year, 35% to 65% at 3 years, and 39% to 80% at 5 years, which in some cases is worse than for most malignancies.[2] Foot ulcer cause substantial emotional, physical, and financial losses.[3] About 20-40% of patients with diabetes have neuropathy, and 50% will develop symptomatic peripheral vascular disease within twenty years of diagnosis.[4] Other contributing factors of diabetic foot ulceration are excessive planter pressure, repetitive trauma, and increase rate of onychomycosis. Poor vision and obesity that are associated with diabetes may also impair self-care.[5] Because providing high quality care should improve treatment outcomes, it would be useful to know the factors affect the results of treatment for diabetic foot complications.[6]

In this country diabetic foot disease is exacerbated by socio-cultural factors such as the prevalence of walking barefoot, lack of knowledge regarding diabetic foot complications, prolonged treatment by Jarrah (quacks), and late referral when amputation is inevitable. This huge challenge imposed by diabetic foot problems calls for prevention and effective management at the initial stages of disease.

This study was designed to determine those factors, which reduces and increases the risk of amputation in our population. Diabetes related foot complications are a major cause of hospitalization and prolonged hospital stay.[2,4] General physician should be able to rapidly identify patient with ulcer at high risk for adverse outcomes to initiate concentrated action.[4]

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METHODOLOGY

This study took place at Baqai University Hospital and Korangi Surgical Clinic, both located in periphery of Karachi. Patients from both the localities were mostly uneducated and had a poor socioeconomic background. A total of 112 patients of all age groups who were diagnosed as diabetics and managed were included in the study. The final study group comparised of 100 patients, during a period from May 2006 to May 2008.

All were having diabetic foot ulcers, ranging from superficial to deep ulcers and few were having the exposed bone and tendons. Besides collecting routine data special attention was focus on age incidence, sex distribution, history of smoking, hypertension, duration of diabetes, and past history of any diabetic wounds or amputation. Information collected about current diabetic foot including duration of wound, severity of pain, walking difficulties, investigation and treatment received so far. Additional data included finding of foot examination like protective sensation, skin and nail condition, and vascular status.

Treatment policy was focused into two main targets. One is to educate the patient regarding diabetic foot disease and its complications and second target was to provide intensive and aggressive treatment of diabetic foot ulcers. Family members were requested to support the patients in foot care management. Almost all the patients came with infected diabetic foot ulcer and the reason for coming was progressive deterioration of wound despite taking treatment from quack and local General Practitioner.

Data was collected on performa and the results were analyzed for frequency and percentages.

RESULTS

The authors studied 100 patients with diabetic foot ulcers. Out of the total 100 patients included in this study, there were 76% males and 24% females, with ages ranging from 30-60 years, the mean age being 45 years. History of diabetes ranging from 8-20 years, the average being 10 years. Out of 100 diabetic foot patients 39 healed completely; 28 were male and 11 were females. Minor amputations were required in 27 patients, without producing any disability on walking. Their detail is shown in Table I. On the other hand 10 patients underwent major amputations including below knee and above knee amputation. Two patients died during treatment due to sepsis. Nine patients developed new wound on other site or on opposite foot. They required a second surgery.

Type of Amputation	Male	Female
Toe	14	7
Foot / ankle	4	2
Below Knee	6	2
Above Knee	1	1

Table I. Details of amputations

DISCUSSION

Knowing which clinical factors predict an unfavourable outcome could help the clinician to consider more aggressive diagnostic and therapeutic interventions.[6] Armstrong[7] found that the risk for high level limb amputation was higher for wounds that penetrated to bone than for those that did not involve deep structures. One large prospective study of Benjamin[8] showed that many factors might predict clinical outcome including male gender, increased serum inflammatory markers (leukocytes count, ESR and C-reactive protein), long duration of diabetes, poor glycemic control, elevated serum creatinine, and diminished pedal pulses. Studies of others authors described additional factors that promoting limb amputation are including presence of fever, previous foot infection, delay in arrival of patient, antibiotic resistant pathogens, and limb ischemia.[8]

In this case series of 100 diabetic foots 39% were healed completely, 22% patients disappeared during treatment, 2% died while 27% required minor amputation and 10% underwent major amputations. The most common cause of foot ulcer was neuropathy. Retrospective study of Yusof[9] demonstrated the incidence of lower limb amputation. They enrolled 203 patients, Out of these 135 were diabetic. 23(17%) patients underwent above knee amputation, 44(33%) patients underwent below knee amputation, 68(50%) patients underwent local foot amputation. Good diabetic control and detection of early diabetic foot complications will reduce the number of patients undergoing limb amputation as well as the number of amputees.

Diabetic foot complications in this case series is due to various psychosocial reasons. One reason is a poor level of understanding of diabetes mellitus especially among the elderly population. Secondly, most patients from rural areas have to travel long distances to seek medical advice. These patients require education, optimum treatment and early detection of diabetic foot complications, as well as providing foot care and podiatric services. Thirdly a significant number of patients believe in traditional folk medicine, taking this as their primary health-

care. Another study of Vickie[10] R. Madigan army medical center Washington regarding limb salvage technique in diabetic foot patients. All patients in this study pass through a intensive management plan that consist of initial assessment, frequency of future examination, educational counseling, diagnostic tests, footwear modification, and specialist referral, as necessary. Their result shows that there is a marked decrease in lower limb amputation from 33% in 1999 to 9% in 2003.[10] American diabetes association currently recommends a comprehensive foot examination at least each year to identify high-risk foot conditions.[11] Examination includes assessing for anatomic deformities, skin breaks, and nail disorders, loss of protective sensation, diminished arterial supply, and improper foot wear. Diabetes with one or more high-risk conditions should be evaluated more frequently to avoid irreversible changes.[12,13]

Aksoy[14] demonstrated that implementation of diabetic foot care team in tertiary center has relatively decreased the rate of major amputations in an attempt for limb salvage to improve the quality of life of the patients. Diabetic foot care team consists on infectious diseases specialist, orthopaedic surgeons, endocrinologist, a plastic and reconstructive surgeon, a radiologist, a diabetic foot nurse, and chiropodist.[14] The most helpful factor in preventing all foot complications is patient education. Positive impact of foot care education has been assessed in a study of Vijay,[15] in which they provided simple foot care management advice to patients, such as daily examination of feet, how to perform a pedicure, and usage of proper foot wear, which markedly reduced the foot complications, morbidity and health care costs.

In an amputation prevention study by Patout[16] conducted in an African-American population, intensive management of foot ulceration resulted in a 79% decrease in the incidence of lower extremity amputation and an 87% lower incidence of foot operations.[14] Patient education formats have included lectures, hands-on workshops, skill exercises, behavioral modification programs and telephone reminders.

CONCLUSION

It is concluded that awarness about foot care in diabetics is lacking and education is needed in this area.

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