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Why I hate diabetic foot

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Abstract

In spite of being a specialist diabetic foot surgeon, I often find diabetic foot to be a disaster to patient and his family. Once he develops diabetic foot complications, then he is often faced with risk of amputation, be it major or minor. He ends up in a vicious cycle of recurrences and readmissions and all these turns out being expensive to patient adding financial burden. If patients end up in major amputation, then he becomes physically handicapped. There are chances that he may lose his job and patient may develop psychological problems. Most of these issues keep occurring and recurring in a diabetic foot patient. This article highlights on some of the factors as to why I hate diabetic foot despite being a specialist of this field.

Keywords: Diabetic foot, amputation, recurrence, ulcer

Introduction

Diabetes mellitus is a chronic non communicable metabolic disease whose prevalence is increasing worldwide [1, 2]. It is predicted that by year 2030, there will be 366 million people with diabetes and it will be seventh leading cause of mortality worldwide [3]. In fact, diabetes mellitus is no a serious public health issue globally [4].

Among all the complications that occur in diabetics, diabetic foot remains one of the most severe and serious complication that can lead to increase in morbidity and mortality [5, 6]. It is stated that 15% to 25% of individuals who have diabetes will have a foot ulcers in their life time [7, 8]. The annual incidence of the ulcers in the foot is 2.2-5.9% and they often preceded amputation in 85% of the cases [9].

The problems with diabetic foot are just not once. Often, there is re-ulceration, recurrent admissions, re-amputations; etc that constantly adds misery to the patient and his family.

The following are some of the common important issues in diabetic foot (Figure 1).

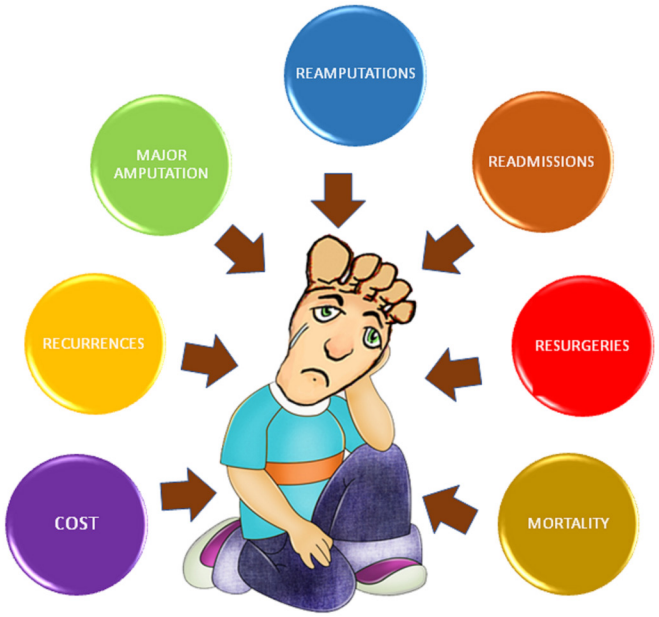

Figure 1. showing the burden on diabetic foot (Image courtesy & permission - Amit Jain's Institute of Diabetic Foot & Wound Care)

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Recurrences

It is well known that diabetic foot is a lifelong problem and there are high chances of recurrences of the pathology [9]. The lesions can occur at the same site like recurrent ulcer or in the same limb like cellulitis or the same problems can occur in the opposite limb also like abscess, wet gangrene, ulcers, etc. Among all, ulcer recurrence is one of the most common problems seen in clinical practice (Figure 2). It is stated that re-ulceration rates are around 35-40% over 3 years and can increase up to 70% over 5 years [10]. Another common pathology which can recur is cellulitis. It is believed that cellulitis can recur in 8-20% of the cases and it is common in lower limbs [11]. Recurrent abscess are also seen in clinical practice and they can occur in foot or leg on ipsilateral or contra lateral sides.

Figure 2. showing the ulcer recurrences in the foot after great toe amputation

Major amputation

Although amputation in diabetic foot is common surgery, the major amputation if done, can result in social, psychological and huge financial burden on patient [12]. The rate of major amputations in country like India, that has huge burden of diabetes and diabetic foot, ranges from 10.5% to 48% [7]. A study by Jain et al showed that majority of major amputation were in type 1 diabetic foot complications which are infective complications like wet gangrene, necrotizing fasciitis, abscess, etc [7].

Major amputation (Figure 3) is an unfortunate event in a patient and they are found to be more debilitating when compared to minor amputations [7, 13]. Most of the patients may have to be on wheelchair mobility either short term or long term [14]. It was noted in a study by Chopra et al that only 46.1% of patient were ambulatory after 1 years of major amputation of lower limb [15].

Figure 3. showing a patient who underwent major amputation and thereafter multiple surgeries and finally secondary suturing

Re-amputations

Once a patient undergoes any form of lower extremity amputations, the chance of another amputation is very high. The re-amputation can be ipsilateral or contra lateral [16]. Studies have shown that re-amputation rate could be 26.7% within 1 year to as high as 60% at 10 years [16]. It is shown that post ray amputation, which is a minor amputation; the re-amputation rates are as high as 50% after 5 years [17]. It is noted that most patient with ray amputation may have re-amputation within 10 months [18]. Around 14 to 31.8% of patients with trans metatarsal amputation will end in a major amputation [19].

Re-surgeries

Re-debridement and revision surgeries are common re-surgeries done to achieve a good wound healing. In a study by Sharada et al, it was seen that 11.1% of patients with cellulitis in lower limbs including diabetics and non diabetics, required re-surgeries [20]. A study by Jain et al showed that 33.3% of patients required re-surgeries after trans-metatarsal amputation [19]. Most of the re-surgeries are done due to wound breakdown, residual infection or non progression of wound healing.

Readmissions

Readmissions for diabetic foot problems is also extremely common. It is seen that readmission rates due to diabetic foot can range from 17 to 23% [21]. Readmissions wound definitely pose a huge socioeconomic burden to patients and health care system [22]. A study by Holscher et al showed that 17% of diabetic foot patient had unplanned 30-day readmission rate [23]. The readmission could be due to some problem requiring re-surgeries or re-amputation or a new pathology in the foot.

Cost

Diabetic foot is a costly complication to treat in view of delayed wound healing, multi-disciplinary involvement, re-surgeries and readmissions. Further, the financial burden can bring instability to a family if the person with diabetic foot is a bread winner for entire family and in case he loses his job, then there is likely to be a financial catastrophe in his house. It was seen that even in highly developed countries like USA, the cost of treating a single foot ulcer was around $28000 [8].

It is well known that treating diabetic foot ulcers is costly and can involve 20% of total cost for diabetes treatment and it is more in comparison to other diabetic complication [24]. It was observed that in India, patients with foot problems spent 32.3% of their total income on its management [25].

Mortality

Diabetic foot patients are known to have higher mortality rates [26]. It is observed that inpatient mortality in diabetic foot patient is often due to sepsis [26]. A study by Sondergaard et al showed that patient referred for surgical revision of diabetic foot ulcer had high one year mortality being around 36% [27].

A study by Jain et al from India done on mortality in diabetic foot showed that necrotizing fasciitis, which is a type 1 diabetic foot complication, was the commonest pathological lesion that was leading cause of death in diabetic foot patients and majority of them (46%) had died within 1 week of admission [28].

It is also observed that 5 year mortality rate in a patient with diabetic foot ulcer is around 50% [29].One year and 3 year mortality after lower extremity amputation in diabetes patient and peripheral vascular disease has been reported to be as high as 48% and 71% [30].

Conclusion

Diabetes and its complications like diabetic foot are increasing exponentially in many parts of the world. Once a patient has diabetic foot, then he is at a constant risk of many problems which are known to recur frequently like re-ulcerations, re-surgeries, re-admissions, etc which will increase the cost of treatment. Even if we provide a good care, the recurrent problems in the patient and the financial burden that gets added will not keep them happy. If a patient ends up in major amputation, then the burden is extended to entire family as the patient is rendered handicap and requires a dependent care which again can keep the entire family unhappy. Prevention is the best known strategy for this malady.

Conflict of interests
The authors declare that they have no competing interests.

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