



Challenges of Surgical Management of Diabetic Foot Ulcers

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Case Report

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Abstract

World Health Organization estimates that about 422 million people worldwide have diabetes, the majority living in low-and middle-income countries. The lifetime risk of developing a diabetic foot ulcer (DFU) is between 19% and 34%. The incidence of osteomyelitis is about 20% leading 20% of moderate or severe DFU cases of 5 years or more duration in lower extremity amputations.

Diabetic foot treatment required hospitalization for 60% while around 40% are treated in outpatient services. Healing time is around 20 weeks for outpatients and 30 weeks for patients that require hospitalization. Costs. Treatment for diabetic foot globally costs about 5000 US \$ with hospital stay.

Conservative approach includes using appropriate antibiotic, after culture and antibiotic sensitivity test with regular debridement, and keeping the wound clean and monitoring the wound healing progress. Most surgeons feel conservative approach is time consuming, coordination challenge, risk for life and an economic burden and therefore are in undue hurry to go for amputation of the effected part.

Material & Methods: This article is a qualitative analysis of 4 episodes of DFU in three individuals followed by the author for 6-15 months. First case leading to amputation of Right leg about a decade ago, second another similar case but saved by debridement and dressing by family members in 2023-24. The psychological impact on the second case was very positive despite a 15-month routine of dressings when compared to the first case where the individual lived with depression after the amputation. The third and the fourth episodes were in the same individual leading to amputation of left little toe in late 2022, followed by saving right middle toe of DFU using appropriate antibiotics after culture sensitivity tests and empowering the spouse for debridement and dressings for 5 weeks in late 2023. The patient is repenting for losing the left little toe in a hurry which causes him an embarrassment often.

Outcomes: Based on these case studies public health professionals advocate empowering and involving family members in the home care of DFUs to reduce the expenses and minimize lifelong psychological trauma of losing a part of the body by the patient and family.

Keywords: Diabetes; Diabetic Foot Ulcers; Global Burden of Diabetic Disease; Infection; Amputation; Manging Foot Care; Ambulatory Functions; Employment and Socio-Economic Challenges; Emotional Impact; Financial Stress on the Family & the Country; Insurance Schemes.

Abbreviations

DFU: Diabetic Foot Ulcer; WHO: World Health Organization; ICMR: Indian Council of Medical Research; EAET: Emotional Awareness and Expression Therapy (EAET).

Introduction

World Health Organization estimates that there are about 422 million people worldwide have diabetes, the majority living in low-and middle-income countries, and 1.5 million deaths are directly attributed to diabetes each year [1]. The most common symptom of diabetic foot ulcers is black tissue surrounding the ulcer, which forms because of the absence of healthy blood flow to the area around the ulcer. According to the Global Burden of Disease study, it was estimated that in 2016, worldwide 34% of diabetics had lower-limb complications, of which 105.6 million had neuropathy alone, 18.6 million had DFU, and 6.8 million had lower-extremity amputations [2].

Neuropathy and ischaemia are two great pathologies of the diabetic foot which lead to the characteristic features of foot ulceration (neuropathic and ischaemic) and Charcot neuroarthropathy. Peripheral nerves in the lower limbs are susceptible to symmetrical sensory neuropathy associated with autonomic neuropathy, which advances gradually, and acutely painful neuropathies and mononeuropathies which have a rather acute presentation but usually recover. Ischaemia in the form of peripheral arterial disease is an important contributor to the burden of the diabetic foot. The incidence of atherosclerotic disease is raised in patients with diabetes and its natural history is accelerated. The lifetime risk of developing a diabetic foot ulcer is between 19% and 34%. These get complicated by infection and eventually result in amputation (minor or major) and increased mortality. All these features contribute to considerable clinical and economic burden [2].

The literature review infers that the rate of DFU recurrence is 40% in the first year after healing, 50% at 2 years, and 65% at 5 years. One in 5 of persons with diabetes for over 5 years develop ulcers and 20% of them get their bones infected leading to osteomyelitis needing limb amputation [2]. For the average Indian families with one diabetic foot ulcer case, economic burden will be in the range of INR 5000 per month in addition to medication cost which are in the range of 3000-4000 currently. Cases needing either long time debridement and dressings or amputations may have to spend another INR 50,000. Apart from financial burden depression and poor ambulatory functions lead to social and emotional problems.

This article is prompted by three individuals and 4 episodes of DFU followed by the author. First case leading to

amputation of Right leg in an elderly person about a decade ago, second similar case, but limb saved by debridement and dressing involving family members in 2023-24. The third individual subjected to amputation of left little toe in late 2022, followed by right middle toe DFU, investigated for PAD by Doppler test, and use of appropriate antibiotics after culture senility test, regular household level debridement and dressings for 5 weeks in later half of 2023.

The objective of this study is to draw attention of the health care professionals and the families, the need for trying conservative approaches to save the affected DFU part, in turn lifelong psychological impact on the patient and the family.

Case Reports

Despite the patient's positive outlook amputation of DFU Leg extended life for 5 yrs: Mr Tukaram Rao, a 56-year-old teacher a known diabetic patient from Bengaluru came to me in New-Delhi in early 1992, suddenly with an amputated limb seeking a prosthetic limb. The history revealed that 16 months ago he had food ulcer in Rt. Leg, that was cleaned & dressings done by a local practitioner for about a month and the wound did not heal, he was referred to a private tertiary care hospital. The hospital after a battery of investigation advised amputation of the limb urgently, threatening the risk of bone infection, septicaemia and risk to life. His 3 sons consulted and decided to get the amputation as advised which was done in June 1990. The surgery and post-operative stay in the hospital was eventless. The entire cost of treatment, from dressings, intensified diabetes management (Insulin injections etc), consultations, surgery and post-operative care had costed the family about INR 100,000. After that the patient however, had body image disturbances including shame and embarrassment related to the unique experience of limb loss. The impact of physical impairment resulted in significant loss of mobility, due to loss of balance, pain, loss of strength, and medical directives to elevate or isolate the affected area especially initially for 3-4 weeks when the leg was in a boot. He started feeling a little unsteady on his feet, always afraid of as if about to fall over, that prompted him to go for artificial limb. However, his positive emotions related to what he had overcome was encouraging. He took pride in being able to carry out simple tasks such as walking unassisted and looking at a wheelchair he was in, that is folded up. He used to say, 'I'm done with the wheelchair, I am using my walker 100%' and then 3 months later, he said he wasn't using the walker either with an artificial limb.

But he survived for only 5 years after the amputation and died more due to depression and other diabetic complications.

Empowered family saves Diabetic foot ulcer patients Leg: Mr Padki, aged 68 yrs. A known diabetic for 12 years,

in June 2023 hurt his right foot, that was not well attended, and infection set in in about a week's time. A consultation in a nearby surgical nursing home, led to debridement and dressings, IV antibiotics and a week's hospital stay. The dressings everyday involved an expense of INR 1000 (including commuting). Two weeks after discharge, the wound got reinfected and another course of antibiotics didn't help. The surgeon suggested below knee amputation of limb. They consulted me in Mid-July 2023. After visiting the patient at their home, attempting debridement myself, was easy as the entire foot was painless (neurogenic ulcer) with good vascularity. In the first visit discussing the complexity and burden of coordinating with external caretakers and medical personnel, including arranging transport to and attending follow-up medical appointments, challenges of frequent changes to home care nursing staff, etc., I suggested involvement of his spouse and son was better for doing dressing and doing most of the care. Both agreed in principle. I explained to them the elements of ulcer care in the home, changing of wound dressing, application of topical ointments, and cleaning and elevation of the wounded leg. I told them that the healing of ulcers depended on keeping the wound clean, using the Betadine lotion and scissors to debride what was dying off and to allow new tissue to grow for 6-8 months- daily initially for about a month and alternate days subsequently twice a week. His son and wife agreed to take the care responsibility. The required set of scissors, artery forceps and holding teethered forceps, pairs of gloves etc. were bought along with dressings, sterile gauzes, silver ointment, which were replenished periodically. Every day's expenses were around INR 100 on these items. It was easy to train them as they were already doing things like helping to clean the patient with hot water or saltwater, to keep his feet clean.

Family members were challenged with to assist him both in direct wound care as well as providing help with daily chores and house maintenance. They got pretty good at dressings in about half a dozen assisted and supervised performance by me, could do daily initially for about a fortnight, at reduced interval once the wound started showing signs of healing with pink granulations. This of course presented challenges in shifting the balance of household labour division and inverting care-taking roles. For example, his 28-year-old son had had to assume the role of primary caretaker. Wife/Son or DIL had to grab the patient something to drink or eat. Patient started feeling like a burden to his family, saying: "Now I'm depending on somebody to go to bathroom also, change the dressing on my feet, grab me something to drink or a cup of coffee and even having somebody else wipe my butt if were to pee in a bottle or toilet in a Bed Pan".

With the concerted efforts of the spouse and the son for dressings and my support in debridement thrice in August, September and November the first sign of granulation tissue

was seen in December 2023 and by now the person can walk.

This case of year long struggle of the empowered family's success in saving the DFU limb is a message for family physicians to involve client's families in the care of chronic conditions for socio-economic and mental health benefits.

Anil lost one Toe & retained another by self-care and Spouse's support: Mr Anil aged 62 years, complained of tip of the toes burning and soon developed an ulcer after a trivial injury over left little toe in early January 2023. A private surgeon in Gangavathi in Koppal district, tried debridement and antibiotics and after 6 weeks of not healing, amputated the distal phalanx of the toe in April 23. The patient was known diabetic for 1 year. In July 2023 he developed similar ulcer on the middle toe of the right leg. This time an X-ray did not show any involvement of the bone, but the surgeon in Govt. Hospital wanted to rule out Peripheral artery angiogram. The patient came to Bengaluru and consulted a specialist who ruled out any vascular disease after Doppler test of Right lower limb. The Doppler test report read "Mild atherosclerosis changes in the limb but no significant stenosis or occlusion. However, the culture of the sound swab showed growth of Pseudomonas Areosa. He was advised to get the wound cleaned with hydrogen peroxide and apply Betadine lotion and Silverx ointment {Silver Sulphadiazine (1%), Chlorhexidine Gluconate (0.2%)} with oral antibiotic for 8 days. Simple wound cleaning and dressing cost about INR 200, in any clinic, but the same done at home would hardly cost in 50. The wound healed over a period of 5 weeks and saved the toe.

This case is yet another case of unwanted hurry in amputating the left little toe, whereas proper investigation & conservative management saved the Right middle toe.

Discussions

In Western countries, the annual incidence of foot ulceration in the diabetic population is around 2%. DFUs develop because of a combination of factors, like peripheral neuropathy (loss of the gift of pain), peripheral arterial disease (PAD), and some form of unperceived trauma. Recent studies emphasize the very high prevalence of foot ulceration in people with diabetes on dialysis because of end-stage renal disease [3]. DFU is associated with significant impairment of quality of life, increased morbidity and mortality, of the patient and financial and social burden on the family and a huge drain on health care resources of the country.

In India out of 100 million diabetics of more than 5 years duration 25% develop DFUs, of which 50% require hospitalization for managing infection, 20% need amputations, yielding a soaring number of 5 million

amputations annually. DFUs contribute to approximately 80% of non-traumatic amputations in India [2]. The most common symptom of diabetic foot ulcers is black tissue surrounding the ulcer, which forms because of the absence of healthy blood flow to the area around the ulcer. One might see partial or complete tissue death due to infection around the affected area, causing pain, numbness, and pus discharge. Some other signs and symptoms of diabetic foot ulcers include darkened skin on the affected area, numbness, loss of hair around the affected area pain and tingling, loss of senses, discharge of fluid or pus, foul smell & swelling, changes in the skin or toenails (cuts, blisters, sores, or calluses), skin discoloration and redness at times. Some diabetic foot ulcers don't show symptoms until they become infected [4].

The common trigger factors include i) Spontaneous 58.4%, Trauma-37.7%, Puncture- 1.3% and insect Bite -2.6% [5]. The causes for DFU include Poor Blood Circulation, Nerve Damage leading to loss of sensation in the feet or tingling and painful at times, which cause ulcers on your feet and Hyperglycaemia that slows down the healing process.

Almost 80% population of diabetic foot are from low to middle income countries like India, a country with second largest number of diabetic populations [2].

The social epidemiology of diabetic foot and its complications in India is different from the West. There is a considerable delay in seeking a physician for foot problems, as patients continue invalidated and indigenous methods of treatment. At presentation, most of the foot ulcers are chronic, harbour infection, and neuropathic in origin compared to the West with predominantly neurovascular ulcers. A predominance of Gram-negative bacterial species is reported in DFUs, with *Pseudomonas aeruginosa* as the most common isolated organism. An initial empirical antibiotic choice covering Gram-negative bacteria is suggested.

A hospital-based cross-sectional study, of 154 patients with diabetic foot ulcers or amputations, a median total annual out-of-pocket expenditure for the management of diabetic foot ulcers was reported to be ₹29 775. Out of the total expenditure, 58.49% went towards direct medical costs, 5.64% towards direct non-medical costs, and 35.88% for indirect costs. Medications, ulcer dressing and periodic debridement have accounted for 79.26% of direct medical costs. Transportation (61.37%) and patient's loss of income (89.45%) account for the major costs under the direct non-medical and indirect cost categories, respectively. A high ulcer grade and area, long ulcer duration, and history of ulcers have higher expenditure. Patients seeking treatment from private establishments and those engaged in professional/skilled occupations have double to triple higher expenses. Adequate dressing of foot ulcers and proper footwear are

associated with lower treatment expenditure. Nearly two-thirds of the patients face catastrophic expenditure due to treatment costs [5].

Etiopathogenesis of Diabetic Foot Ulceration

The foot does not break down spontaneously. It was previously believed that neuropathy, vascular disease, and infection were the main causes of ulceration but now it is recognized that infection occurs because of ulceration and is not a cause thereof.

Risk Factors for Foot Ulceration include- i) Peripheral neuropathy- Somatic, Autonomic, ii) Peripheral arterial disease-Proximal and/or distal disease, iii) Previous history of foot ulcers/ amputation, iv) Other long-term complications, v) End-stage renal disease (on dialysis), vi) Post-transplant (including pancreas/kidney transplant), vii) Visual loss, ix) Plantar callus, x) Elevated foot pressures, xi) Foot deformity, xii) Oedema and xiii) Poor social background.

A study in a tertiary hospital in South Africa, conducted an audit of patients who had DFS and were admitted over a 5-year period (1st January 2016 to 31st December 2020), death confirmed from family members of the deceased using structured telephonic interview questionnaires. The results indicated that out of 197 cases who had Type 2 diabetes mellitus and 63.5 % were males. Associated comorbidities included hypertension in 73.6 %, obesity in 66 %, alcohol use in 64.5 % and smoking in 58.4 %. 190 participants had an amputation and 19.3 % died. DFS was more common in males & 96 % of the patients had an amputation. Mortality rate within 4 years following amputation was 19.3 % and was higher in females and individuals with multiple comorbidities [6].

An observational prospective study of 100 cases for evaluation of diabetic foot ulcer and its surgical management at P.D.U. Hospital, Rajkot from January 2017 to November 2018 reported that the average age of presentation was 55.70 year. The male to female ratio was 1.27:1. Most of the patients were from lower middle class and upper lower class according to modified Kuppuswamy socioeconomic classification. Most of the patients had duration of diabetes more than 5 years. Most common microorganism grown from culture was *Staphylococcus aureus* (23%), followed by *Klebsiella pneumoniae* - 17%, *Pseudomonas Aeruginosa* - 13%, *Proteus mirabilis* 6%, *E. Coli* -3%, and No bacteria found-31%. The management involved Amputation 74%, Debridement - 19% and daily dressing - 7 7%.

This study had a higher rate of amputations of 74% due to late presentation and neglected disease due to peripheral neuropathy causes decreased pain sensation. The study

reported complications of Neuropathy -76%, Callus - 5%, Deformity -2%, Recurrence-2% [4].

Based on the four case reports, this article is comparing

the comprehensive impact in two sections:1) Once case of Amputation Vs debridement and dressing at home for over 1 year and another the case of one toe amputation and another saved toe in the same patient.

The Impact of DFUs

| Type of Impact | Amputation Case | Debridement and Dressings Case |
|----------------------------|---|---|
| Care Management | i. After a week's hospitalization, the patient had to commute to the facility twice a week for wound care for 6 weeks. | i. Facility based dressing thrice a week for 6 weeks |
| | ii. Later Rehabilitation for mobility with crutches took about 4 weeks | ii. Home based supervised debridement and dressing once a week for 4 weeks |
| | iii. Finally artificial limb acquiring & getting used to, took 2 months efforts. | iii. Continued cleaning and Dressings 3-2 times a week for one year |
| | | IV, Buying of basic instruments like artery & toothed dressing forceps & scissors. |
| | | v. Replenishment of sterilized dressing materials very month |
| | | vi. Picking & dropping doctor from metro station about half a dozen times |
| Ambulatory function | i. Restricted movement for about 3 weeks before amputation | i. Commuting in car & wheelchair in the facility for 6 weeks |
| | ii. Complete bed ridden for 1 week after amputation | ii) Restricted mobility entire 1 year in home only |
| | iii. Wheelchair for 2 weeks | iii) Going down and almost normal waking for short distances for 1 month |
| | iv. Adapting to crutches 1 week | |
| | v. Artificial limb practice 1 week | |
| Employment Impact | Being retired person had no problem, got pension | Was unemployed for over 5 years, same continues. |
| Economic Impact | i. Personal income continued | i. No personal income & not affected |
| | ii Sons spent over 100,000 for surgery and another 100000 for artificial limb | ii. Son spent about 25000 in facility management & another 25000 at homecare for 1 year |
| Social Impact | i. Got good family support as son's took him to facility. | i. Got restricted to home for 15 month. ii. Spouse, son and DIL complimented for homecare, feeding and for some time even taking him to toilet |
| | ii. his social contacts remained | iii. Avoided most social functions |
| | iii. his own going out got restricted | iv relatives did call on him |
| Emotional Impact | Being strong and self-made person took a positive outlook of the entire event did not have any psychological effect | Was shattered after hearing about suggested amputation. |
| | | Was happy with homecare & attention |
| | | Often felt burdening family |
| | | Saved limb was highly satisfying and grateful to almighty& all who helped him |
| Families' Concerns | Apprehension & Tension during the surgery & recovery period, subsequently sympathetic for lost leg and kept guarding injury | Burden of home health care and other services, had disturbed their routine, saving the leg and expenses by half was satisfying and rewarding the efforts they said. |

Table 1: Comparison of Amputation Vs Long Term efforts saving the Leg.

| Type of Impact | Amputation Left Little Toe | Saving Right Middle Toe |
|---------------------|---|---|
| Care Management | i. For 4 weeks of debridement and non-healing wound, the patient had to commute to the facility twice a week for wound care | i. Facility based dressing thrice a week for 6 weeks, X ray showing no bony involvement ii. Referral for Doppler to rule out PAD and culture sensitivity of the wound discharge ended in relief |
| | ii. Amputation of distal phalanx under local anaesthesia event | ii. Home based supervised debridement and dressing for one week in Bengaluru |
| | iii. Finally artificial limb acquiring & getting used to, took 2 months efforts. | iii. Continued cleaning and Dressings 3-2 times a week for one month was a bit painful as it was vascular ulcer & infection |
| | | IV, Buying of basic instruments like an artery forceps & scissors. |
| | | v. Replenishment of sterilized dressing materials very week |
| | | vi. Satisfaction of home care and spouses' involvement. |
| Ambulatory function | i. Little Restricted movement for about 3 weeks before amputation and 2 weeks after amputation and inability to wear shoes | Similar mild discomfort in walking and inability to wear shoes |
| Employment Impact | Being unemployed person had no problem, for overall period | |
| Economic Impact | Family spent over 10,000 for surgery and another 1000 for initial dressings and drugs. | i. Family spent about 5000 in facility for Doppler and Culture & sensitivity test another 2000 at homecare for 2 months |
| Social Impact | i. Got good family support as spouse and younger son took him to facility. | Got good family support as brother facilitated care at facility. |
| | ii. his social contacts unchanged | ii. His sympathetic social contacts increased, and some criticized losing of toe earlier. |
| Emotional Impact | Losing the toe was inconsequential but was a matter of embarrassment for few weeks and criticism of not seeking proper care. | i. Was highly relieved when amputation was rule-out. |
| | | ii. Homecare & attention was a bit of burden for family |
| | | iii. saving cost by doing home dressings was another point of satisfaction |
| Families' Concerns | i. Apprehension & Tension during the surgery & recovery period, ii. Subsequently sympathy for lost toe & ulcer in the right middle toe. | i. Burden of home health care disturbed spouse's routine, |
| | | ii. Saving the toe and expenses by half was rewarding the efforts made. |

Table 2: Comparison of Amputation Vs Saving of a Toe in same Individual.

Managing Care

General: The complexity of managing care for ulcers and amputations placed a heavy burden on the patients and their family. Elements of ulcer and amputation care in the facility remain to be costly and challenge to take the patient to the facility. On the other hand, care in the home of oral medication antibiotics, changing of wound dressing, application of topical ointments, and cleaning and elevation of the wound. Seeing the pink healthy tissue for the first time after 2-3weeks was a sheer joy for the family.

Family members empowerment in both with direct wound care as well as providing help with daily chores and house maintenance is highly satisfying to the family and the family physician. Most of them get pretty good at dressings in about half a dozen assisted and supervised performance. This of course presents challenges in shifting the balance of household labour division and inverting care-taking roles. Patients start feeling that S/he is a burden to his/her family as our patient Mr. Padaki started saying: "Now I'm depending on spouse or son to take me to toilet, change the dressing, grab me a cup of coffee to drink and even seek help to pee in a bottle or toilet in a Bed Pan".

Decline in Ambulatory Function

The impact of physical impairment(s) results in significant loss of mobility, if below knee amputation is done due to loss of balance, pain, loss of strength, but not much in case of toe amputations. Even among patients opting for debridement and dressings, initial few weeks the dressings are bulky and uncomfortable. Some people do lament the slow pace of rehabilitation from ulcers and amputations and face setbacks when they tried to resume prior activities. Even after complete healing, though they walk a lot better, will not have good balance, some complain lasting pain and fatigue that circumscribed their mobility.

Economic and Employment Impacts

Economic stressors related to ulcerations and amputations, arise both from medical bills related to foot care as well as loss of income resulting from the inability to perform regular work duties. Medical expenses are varied and differ among participants based on their distance from health centres, insurance coverage, co-payments for medical visits, surgical procedures, and diabetic footwear, length of recovery, and types of medication prescribed. In India the total cost of Amputation in a private hospital these days is on an average of INR 75,000 (range- INR 50,000 - 150,000) depending upon the severity of infection, size of the ulcer, comorbidities and type of the hospital and its location and reputation. Even in public sector, expenses up to 25,000

for drugs, dressings and commuting etc are expected. Most patients experience economic stress relating to temporary or long-term loss of or changes to employment like compulsion of leaving jobs that require high levels of physical exertion. These economic impacts are in some cases amplified by the sudden nature of ulcer onset and progression. Some patients may feel that they will be back on job in a week's time after noting a strange smell from their foot but figured out that it took about four-six months to come back to the work.

Emotional Impacts

A very common concern among DFU patients and their family members is the emotional impact of the elaborate care routines, loss of mobility, and financial burdens, as well as body image disturbance. This begins at ulcer detection, when patients face challenges over where to seek care, the best course of treatment to follow, and possible negative outcomes. The main emotional query in the minds of the patient and the family members is- when the hospital informs them that he will lose his foot because it really got to the bone and need to be amputated for survival. They are shocked, patient was scared, and praying, almost crying, mad and was so everything with his emotions. Many others have anticipatory fears over potential future loss of mobility and the possibilities of losing their driver's license or being confined to walkers or wheelchairs.

Emotional distress intensifies as the condition advances and after amputations. Most people report feeling of depression, frustration, and powerlessness as they worked to heal. The fear of not being off the bed/couch, for 6-12 months. It affects their life and mental well-being. People working with heavy equipment's like farming, welding, in the past have the concern of walking into the hospital and never go back to their profession. Deep frustration of having to follow doctor's orders to rest, despite their feeling of their ability to tolerate movement.

Loss of mobility also impacts family and social relationships, in some cases causing deep isolation. Some may feel isolated and alone in their pain. Some may feel frustrated or even powerless at not being able to maintain their parenting or care-taking roles for others.

A few participants like Anil and Padki suffer body image disturbances including shame and embarrassment related to the unique disfigurement of limb /toe loss. Anil feels his foot was no longer complete and that he tries to avoid other peoples' comments or questions. They feel embarrassed when they must take off shoe or socks in front of people.

Role of EAET: A single course of emotional awareness and expression therapy (EAET) is associated with a

significantly greater reduction in chronic pain severity than cognitive-behavioural therapy (CBT) and, is considered as psychotherapeutic gold standard. In this therapy, patients are asked to recall a difficult or traumatic memory, engage in experiencing how the related emotions feel in the body, express those feelings in words, and release or let them go. They are taught that the brain's perception of pain is strongly influenced by the evasion of grief, fear, rage, or guilt. This in contrasts with CBT which teaches patients to improve the ability to tolerate pain through guided imagery, muscle relaxation, and other exercises and to adapt their thinking to change how they think about pain [7-9].

Conclusions

In India, the annual incidence of diabetic foot ulcer (DFU) in population-based studies is 1.0 to 4.1% and prevalence of 4.5 to 10%, with an overall lifetime incidence of up to 25%. Out of 100 million diabetics of more than 5 years duration 25% develop DFUs, of which 50% require hospitalization for managing infection, 20% need amputations, yielding a soaring number of 5 million amputations annually.

First adequate glycaemic control and proper foot care are necessary for keeping wound clean. While patients must seek medical care at the earliest in case of foot ulceration, family physicians must provide families proper guidance for wound care, institute effective antibiotics, and manage debridement and the complications.

Management of diabetic foot ulcer is by multimodal approach with conservative and surgical approaches. Preventive measures, early diagnosis and timely surgical intervention prevents limb amputations in diabetic foot ulcer.

Second, it is important to diversify the types of support offered to people with diabetic foot problems in a way that incorporates a varied array of caretakers that extends beyond the formal healthcare system and acknowledge the extensive burden of care and cost.

The use of community health workers can provide an effective support system, in Rural India that are disproportionately burdened by both diabetes and diabetic foot disease.

Many studies have confirmed high rates of depression & poor ambulatory function related to diabetic foot problems, socioeconomical & emotional problems. Greater emphasis needs to be placed on proactive mental health assessment

and support once DFUs are diagnosed.

Early screening and treatment of mental health issues is necessary to identify strategies to mitigate the considerable emotional impact of diabetic foot disease to both the patient and their families, especially considering the exacerbating effects of depression, social isolation, and emotional stress can have on DFU patient outcomes.

Last but most important is the Government must assess the financial stress related to foot disease with coordination of ancillary benefits and services and insurance schemes must cover the cost to alleviate the patients' financial burden.

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