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LETTER TO THE EDITOR:

DIABETIC FOOT: AN OVERVIEW

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INTRODUCTION:

Diabetes mellitus (type 2) is spreading like epidemic in both developed and developing countries. More than 6% of the global population is affected with Diabetes mellitus. It is highly prevalent in India and China. These two countries are at the top of the list of 10 countries where diabetes is very common [1].

Diabetes mellitus (DM) if not managed properly can lead to retinopathy, neuropathy, nephropathy, cardiac-dysfunction, dyslipidemia, dental involvement, skin involvement and sexual dysfunction; it makes patients prone to different types of infections. Likewise diabetic foot is of the well-known complications of uncontrolled DM.

Diabetic foot is a condition that can occur in diabetic patients who develop wound or an ulcer on the foot. In this modern era the diabetic foot is an important but preventable cause of below knee amputation in some diabetic patients. Diabetic foot is common in those patients who are known diabetics for years having micro vascular complications or tripathy of uncontrolled hyperglycemia, peripheral neuropathy and high Low Density Lipoprotein (LDL) cholesterol. Patients having high concentration of Glycated hemoglobin (HbA1C), peripheral neuropathy sensory impairment with impaired dorsal column sensation (position and vibration) and lateral sensation (like pain, touch and temperature) are at high risk [1]. When such high risk patients have minor trauma due to ill-fitting footwear, walking barefooted or minor hot water bottle burns during cold season, they can develop diabetic foot. An important issue that should not be ignored is the role of peripheral vascular compromise. Atherosclerosis may be augmented in adults and in patients having dyslipidemia leading to decreased blood flow to the limbs and feet. ABI (Ankle Brachial Index) by Doppler study of the legs to evaluate the blood flow of such patients can be used for diagnosis. If a foot ulcer develops in such a patient it may fail to heal on its own. Several conditions can lead to progression of diabetic wound on the foot; these include impaired neutrophil, monocyte and macrophage functions, small blood vessel disease leading to ischaemia, atherosclerosis

and leading to microthrombi together may lead to compromise of oxygen supply. This hypoxia along with the background of high sugars favours delayed wound healing. In addition, various infections can further complicate the problem.

There can be varied presentations of Diabetic foot: diabetic ulcer/wound limited to skin only; skin and underlying subcutaneous involvement; involvement of Muscle: wound extends to underlying muscle from skin and subcutaneous tissue; bone involvement but only superficial or periosteum; bone deeper areas of bone are affected. The deeper the wound has extended from the skin, the more difficult and complicated is the management. This may lead to a limb threatening situation. All this makes Diabetic foot wound a challenge for a physician to treat. Thus, when diabetic foot is encountered in a Clinical setting joint multidisciplinary management strategy should commence as soon as possible. Besides the physician, orthopaedician and physiotherapist should be part of the team for managing the Diabetic foot.

Management:

Control of Diabetes: This is the most important thing in the management of diabetic foot. The wound can heal only if the underlying diabetes is tightly controlled. Intensive insulin therapy with basal and bolus doses should be started besides oral hypoglycemic drugs. Daily dressing of the wound: The wound may need daily debridement of dead tissue and washing of wound. Different types of dressing material applications can be used like povidine iodine, silver sulphadiazine, placentarex and hydrogen peroxide can be used either alternatively or sequentially as this provides good results.

Antibacterial cover: As mentioned earlier due to defective leukocyte function abraded skin can be infected by different microbes like staph aureus, streptococci, pseudomonas and others, besides anaerobic organisms. Antibiotics like Cloxacillin, Vancomycin, Cephalosporins, Linzolid (intravenous or orally) can be used along with Clindamycin. Initially we can start parenteral antibiotics and later shift to oral antibiotics. The antibiotics can be given initially for two weeks then alternately for a week, then once weekly owing to dyspepsia and disturbance in gut bacterial flora (dysbiosis). To prevent the gut side effects it is better to give concomitant Proton pump inhibitor (PPI) and lactobacilli.

Off-loading the weight on the limb and foot is important for wound healing to progress. It is important both for a wound on the sole or on dorsum of foot. This prevents the direct pressure on these sites while walking. For offloading many devices are available in the form of sandals or shoes. However, it is better for a patient to seek the opinion of an orthopaedician for suitable and effective offloading device to use [1, 2].

Exercise of the affected limb and foot is very important. This helps in increasing blood flow and vascularity of the foot and also helps in healing of wound. Patient should be kept seated with limbs dangling. The feet should not touch the ground

while doing frequent movements of limbs and feet especially the affected foot and limb.

The newer modalities for management include use of growth factors, topical oxygen therapy, hyperbaric oxygen, platelet rich plasma and bone marrow stem cells. When the foot wound is not responding to treatment and progresses despite optimum treatment, then revascularization may be considered to save the foot and limb [2].

Provision of Education: awareness and education of the patient and family members are very important. This forms the backbone of management and should not be underestimated. Patient and family members are to be educated about the problem. They should be educated thoroughly and be taught about the importance of domiciliary care

Prevention: It is important to prevent the progression of Pre-diabetes to Frank diabetes with the help of changes in life style and modification in diet. The known diabetic patients are to be meticulously managed. Their Glycemic status, blood pressure and dyslipidemia should tightly be controlled. Amongst them patients who have micro or macro vascular complications are prone to diabetic foot, thus they should be identified. The patients having sensory neuropathy and peripheral vessel compromise are the highest risk for developing diabetic foot. Patients should be asked to do self-examinations of foot daily and wipe moisture after washing feet or sweat. In addition, cracks on the sole and heel of the foot should be taken care of promptly. These patients should wear soft footwear; any abrasion or infective focus on the foot should be treated immediately. Toe nails should be cut with utmost care. Aspirin a non-steroidal anti-inflammatory and anti-platelet drug has been used along with other drugs in different interventional studies to halt the progression of micro and macrovascular involvement in diabetic patients [3]. The dose of Aspirin 75-300 mgs daily has been administered to diabetics with cardiovascular morbidity safely. In many studies aspirin has been used in diabetic retinopathy prevention [4]. Aspirin has been used for prevention of vascular damage and diabetic foot but the benefits of which seem to be better when used much early but for primary intervention [5,6].

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