



Diabetic Neuropathy: Foot Infections and Management

Roukis TS*

Orthopaedic Center, Gunderson Health System, South Avenue, La Crosse, Wisconsin, US

Editorial

Peripheral vascular diseases, diabetic neuropathy, repeated trauma are the main stay reasons that leads to ulcers, infection, subsequent hospitalisation. While neuropathy predisposes the foot for infections, vascular disease and immunocompromised state determines the prognosis.

The etiology of diabetic neuropathy is not clearly understood, but one major theory has been described as angiopathy of the vasa nervosum causing ischemia of the nerve. Evidence of the metabolic disturbance has been found, including the accumulation of intraneural sorbitol and glycosylation of the nerve protein and reduction of axonal transport. Loss of protective sensation, combined with recurrent trauma, is the primary mechanism of tissue breakdown in the foot.

Poor glycemic control has been associated with the predisposition of diabetic patients to infections. The presences of high levels of glucose in the bloodstream decrease the ability of leukocyte chemotaxis, and phagocytosis. Thus leading to repeatative infections and poor healing process. Staphylococcus aureus is the most common microorganism that gets involved and around in 46% of cases the S.Aureus becomes methicillin resistant (MRSA) which makes it more difficult to cure.

When it comes to treatment part, a clear evaluation is necessary in order to prevent the need for amputation and permanent disabilities.

Determining the risk factors like diabetes mellitus (blood sugar levels >250mg/DL) , peripheral vascular diseases, any other immunocompromised states, diabetic neuropathy, other syndromes associated with poor glycemic index like Alstrom syndrome, bardet- beidl syndrome, Wolfram syndrome etc. is necessary. Systemic signs of toxicity like WBC count, CRP, ESR and microbiological culture should be done in order to know the specific organism involved, these investigations should be evaluated even when the patient is afebrile and that makes a lot of difference in early approach for definitive management and prevention of complications.

Initial imaging should include weight-bearing plain radiographs to assess for fractures or dislocations, foreign bodies, subcutaneous emphysema, and associated degenerative changes. CT can be used to further evaluate the bony architecture. Suspicion of osteomyelitis may warrant additional evaluation with MRI. With either of these advanced imaging techniques, also before administering any contrast dyes patients renal function must be evaluated.

In this research topic with discuss multidisciplinary approach for treatment of diabetic foot which includes medical management and surgical intervention.

Based on the results of the available studies, no single drug or combination of agents appears to be superior to any others. FDA has approved 3 antibiotics (ertapenem, linezolid, and piperacillin-tazobactam) specifically for the treatment of "complicated skin and skin structure infections including DFI," but not for any accompanying osteomyelitis. When there is a need for surgical intervention it is followed up in a systemic approach.

The approach includes incision, inspection, debridement, culture, irrigation, hemostasis and post-operative care. The 4 D's approach for deep abscess is helpful to plan an appropriate treatment are decompression, drainage, debridement and drugs. Negative pressure wound therapy (NPWT) has revolutionized the management of chronic specially, the post-operative wounds, by faster time to closure and decreasing amputation rate.

Diabetic foot infections are a common source of morbidity, permanent disability and limb loss. In patients with peripheral neuropathy, a large proportion of foot infections and associated morbidity can be prevented through careful surveillance, and preventive strategies. Surgical management is the mainstay for moderate and severe infections, and early recognition is the key for success. Prevention is better than cure. Hence, lifestyle modifications from a very young age can prevent diabetes thus its complications.

Therefore, the goal of this Research Topic is to provide future perspective and future research directions on Diabetic Neuropathy in relation to the management of foot infections and its prevention.

This Research Topic proposes to publish original research and review articles on the potential themes. Manuscripts can be submitted online via Editorial Tracking System or as an E-mail attachment to the Editorial at crfa@omicsonline.org is using Online Review and Editorial Tracking Systems for quality review process and the authors can submit manuscripts and track their progress.

*Corresponding author: Roukis TS, Orthopaedic Center, Gunderson Health System, Mail Stop: C02-006, 1900 South Avenue, La Crosse, Wisconsin USA, Tel: 608-775-9673, E-mail: tsroukis@gundersenhealth.org

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