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**Relationship Between Cellulitis & Diabetic Mellitus**

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## **Abstract**

In my report I will discuss the relation between the diabetes and the cellulites , Diabetic foot infections that are not appropriately treated because of delayed diagnosis or that are inadequately treated lead to lower-extremity amputation developing diabetic foot infections due to *neuropathy*—sensory, motor, and/or autonomic disturbances , Most of the patients had stage 2 cellulitis.

The greater frequency of infections in diabetic patients is caused by the hyperglycemic environment that favors immune dysfunction (e.g., damage to the neutrophil function, depression of the antioxidant system, and humoral immunity), micro- and macro-angiopathies, neuropathy, decrease in the antibacterial activity.

Clinical success rates were lower in diabetic than non-diabetic patients caused by MRSA. Comparing linezolid and vancomycin, clinical and microbiological success rates were comparable in diabetic patients, but were better for linezolid than for vancomycin in non-diabetic patients.

With increasing stage of cellulitis, the need for surgery, re-operations and risk of major amputations increases and this was found to be statistically significant.

## **Introduction :**

Cellulites is an infection found in skin and tissues that are found directly under the skin. It is associated with significant morbidity from necrosectomies and amputations

Diabetes mellitus (DM), , is a group of metabolic disorders in which there are high blood sugar levels over a prolonged period and it is serious complex condition which can affect the entire body. Diabetes requires daily self care and if complications develop, diabetes can have a significant impact on quality of life and can reduce life expectancy.

Infections are more common and when blood glucose is high, it will potentially feed the infection.

It can be caused by many types of bacteria including streptococcus, staphylococcus and methicillin-resistant staphylococcus aureus (MRSA). People that have diabetes are at a higher risk of developing cellulitis and in some cases, can spread rapidly.

Any infection causes an increase in blood glucose. This happens in all people (even in people that usually have their values under control). In people without diabetes, the extra glucose is released to help fight the infection. Their body will also release extra insulin to handle the extra glucose. When a person has diabetes, this extra rise in the glucose can cause problems. Diabetes can also cause the skin to be susceptible to bacteria by slowing blood flow.

## **Discussion:**

### **Case 1**

Patients with diabetes have a 30-fold higher risk of lower-extremity amputation due to infection compared with patients without diabetes.<sup>1,2</sup> Diabetic foot infections that are not appropriately treated because of delayed diagnosis or that are inadequately treated lead to lower-extremity amputation in approximately 10% of patients.

Patients with diabetes have a 12% to 25% risk of developing diabetic foot infections due to *neuropathy*—sensory, motor, and/or autonomic disturbances in which the patient loses the ability to recognize injury or excessive pressure, resulting in foot ulcerations that can develop into infection.<sup>3</sup> In addition, peripheral arterial disease impairs blood flow and restricts the body's ability to fight infection. Other risk factors include hyperglycemia, which can compromise the body's immune response, and degenerative joint disease .

**Case 2:**

In the Department of General Surgery Medical College & Hospital in India between April 2016 to March 2017.

Around 92.3% of the patients were above 40 years of age. Majority of our patients (74%) had diabetes mellitus of less than 10 years duration. 21 patients (53.8%) in the study had associated co-morbid conditions, with hypertension being the most common. Most of the patients had stage 2 cellulitis (41%), followed by stage 1 (33%) and stage 4 (20.5%). Almost 80% of the patients underwent some form of surgery as the initial treatment. With increasing stage of cellulitis, the need for surgery, re-operations and risk of major amputations increases and this was found to be statistically significant.

**Case 3:**

We pooled data from three prospective clinical trials in which 1056 patients were randomized to receive either linezolid (intravenous (IV) or oral) or vancomycin (IV) every 12 h, for 7–28 days.

Diabetic (n = 349) and non-diabetic patients (n = 707) had comparable demographics and co-morbidities. Clinical success rates were lower in diabetic than in non-diabetic patients (72.3% and 85.8%, respectively). Overall, non-diabetic patients had a shorter adjusted mean length of stay (LOS) compared with diabetic patients (8.2 and 10.7 days,).

Among diabetic patients, rates were comparable with linezolid and vancomycin treatment for clinical success (74% and 71%, respectively) and microbiological success (60% and 54%, respectively).

Among non-diabetic patients, clinical and microbiological success rates were higher in linezolid- than in vancomycin-treated patients (90% and 81%, respectively, and 78% and 65%, respectively).

Adjusted mean LOS was shorter with linezolid than with vancomycin treatment in diabetic patients (9.5 and 11.7 days, ) and non-diabetic patients (7.6 and 8.9 days) .

**Conclusion:**

There is some evidence to suggest that diabetes is a factor in the development of lower limb cellulitis, but further robust research is needed to confirm these findings and quantify the risk particularly to the diabetic foot

The main pathogenic mechanisms are: hyperglycemic environment increasing the virulence of some pathogens; lower production of interleukins in response to infection; reduced chemotaxis and phagocytic activity, immobilization of polymorphonuclear leukocytes; glycosuria, gastrointestinal and urinary dysmotility.

The treatment of diabetes-related foot ulcers can be challenging, as various opinions exist regarding classification and treatment. Successful outcomes are possible with prompt diagnosis and effective treatment.

**Recommendation:**

- Call your doctor or healthcare professional immediately.
  - A doctor or qualified health care professional needs to assess the area to determine the extent of the cellulitis and medication to use to treat it. A biopsy may be needed. The doctor may order oral antibiotics medications that you would take by mouth. Many cases of cellulitis need intravenous antibiotics. A person may need to be admitted to the hospital for this. In the hospital, the doctor would have access to other experts for consultation.
- Go to a podiatrist or other qualified foot care professional for recommendations and help to acquire shoes and footwear that.

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