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A STUDY OF FUNGAL INFECTIONS OF SKIN IN DIABETES MELLITUS PATIENTS:

Dermatology

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ABSTRACT

Skin problems are usually not considered and never attended in diabetics. They are usually neglected and they are only taken note of when they pose problems. Many of these skin problems that go undiagnosed diabetic patients later complicate diabetes and its treatment. The common skin infections that can cause major problems and are associated with increased blood glucose levels and Advanced Glycation Products (AGPs). Skin disorders in diabetics are usually consistent as in the medical literature, but the data is limited with respect to early stage skin disorders in diabetic patients. Awareness is needed for better understanding the importance of skin disorders in diabetes patients for prevention and management.

KEYWORDS

Skin, Fungal, Infection, Diabetes.

Introduction:
Skin problems are usually not considered and never attended in diabetics. They are usually neglected and they are only taken note of when they pose problems. Many of these skin problems that go undiagnosed diabetic patients later complicate diabetes and its treatment. The common skin infections that can cause major problems and are associated with increased blood glucose levels and Advanced Glycation Products (AGPs).[1] Skin disorders in diabetics are usually consistent as in the medical literature, but the data is limited with respect to early stage skin disorders in diabetic patients.[2] Awareness is needed for better understanding the importance of skin disorders in diabetes patients for prevention and management. Diabetes Mellitus (DM) is non-infectious disease with a high prevalence accounting for a very high rates of morbidity and mortality. Two years back in 2014, the prevalence of diagnosed DM was 387 million and a reported worldwide deaths accounting to 4.9 million. DM has taken a serious toll in the developing countries and the less developed countries where the prevalence comes close to 77% and has become a major health problem.[3] Even with a high prevalence of DM, data on skin complications is limited. Several studies of skin disorders have been done worldwide and the pattern varies with the type of DM and the geographical variation. The prevalence of cutaneous disorders in DM varied from 50 to 95% in different studies worldwide. Skin disorders in DM patients are related very much to the glycaemic control exercised. In those with inadequate glycaemic control, 94% of them had some skin conditions whereas only 60% of DM patients with adequate control had skin manifestations.[4] DM affects skin by several ways, hyperglycaemia and AGPs, the most documented ones. High levels of blood sugars affect skin homeostasis by inhibiting protein biosynthesis by halting keratinocyte differentiation, proliferation and migration, induction of endothelial cell apoptosis, reducing endogenous nitric oxide synthesis, impairing phagocytosis and chemotaxis.[5,6] Hyperglycaemia can induce direct damage and also induce AGPs formation. AGP formed act in several cellular pathways producing reactive oxygen species that can damage the skin from inside.[6] Cutaneous fungal infections are seen commonly in DM patients who have a poor glycaemic control. They can be caused by the spread of true fungus or sac-like yeast. Yeast infections lead to areas of itchy, red, swollen skin surrounded by blisters or dry scales. At times, the skin may be covered by white discharge resembling “Cottage Cheese”. Yeast survives well in areas like the warm skin folds underneath the breasts, the groin, armpits, oral cavity, the angle of mouth and underneath the foreskin.

Aims and Objectives:
To study the common type of Fungal Infestations in Diabetes Mellitus.

Materials and Methods:
This study is done in the Department of Dermatology, Travancore Medical College, Kollam.

This study was done from oct 2015 to sept 2017.

A total number of 120 patients were studied.

Inclusion Criteria: The patients were known diabetic for at least five years.

Exclusion Criteria: Patients who were treated with immune suppressant drugs were not included in the present study.

Results:

Table 1: Mean age of the Patients

Patients	Mean age	Standard Deviation
120	56.11	14.33

Table 2: Total Number of Patients who developed complications

Patients	Incidence	Percentage
120	65	54.1%

Table 3: Table of Significance

Patients	X-Value	P-Value (<0.05)
65	0.764	0.0035

This is significant.

Table 4: Skin Infestations:

Skin Infestations	Frequency
Tinea pedis	44
Onychomycosis	07
Candidal	09
Yeast Infection	05

Discussion:
Candida species are well-known opportunistic pathogens, which are also the normal human commensal. They were identified first as a cause of oral cavity lesions in the 1840s. Incidence of Candida infections has increased dramatically. They have significantly contributed to mortality in immunocompromised patients including DM patients. Candida organisms are oval microscopic yeasts (4-6 µm) having thin wall and reproduce by budding. Of the 150 Candida spp., only about 10 are pathogenic to humans. Breakdown of human immune defence system is essential for Candida to be pathogenic. This study is undertaken to see the pattern of cutaneous fungal infections in type 2 diabetes mellitus to enrich literature with data to help in effective management of diabetes mellitus as well as fungal infections. According to Sampath Kumar et al. the type of fungal infections, total of twenty four patients suffered from tinea pedis infection out of which seventeen were males and seven were females. Eleven patients suffered from onychomycosis, out of which, ten were males and one was female. A total of four patients suffered from Candidal skin infection, out of which, three were males and one was female. Four patients suffered from Candida angular cheilitis, out of which, male and female amounted to two cases each. Six males were noted to have Candida balanitis and three females suffered from vaginal yeast

infections. A total number of eight patients suffered from Candida intertrigo, out of which, three cases were males and five cases were female. Skin problems are usually not considered and never attended in diabetics. They are usually neglected and they are only taken note of when they pose problems. Many of these skin problems that go undiagnosed diabetic patients later complicate diabetes and its treatment. The common skin infections that can cause major problems and are associated with increased blood glucose levels and Advanced Glycation Products (AGPs). Skin disorders in diabetics are usually consistent as in the medical literature, but the data is limited with respect to early stage skin disorders in diabetic patients. Awareness is needed for better understanding the importance of skin disorders in diabetes patients for prevention and management.

Conclusion:

Fungal infections which are usually seen in the moist areas of the body are a common problem with diabetics and elderly.

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