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# Onychomycosis in Diabetics: Prevalence, Clinical Features and Spectrum of Causative Fungi in South-Eastern Nigeria

## *Onychomycose chez les Diabétiques: Prévalence, Caractéristiques Cliniques et Spectre des Champignons Causaux dans le Sud-Est du Nigeria*

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### ABSTRACT

**INTRODUCTION:** Onychomycosis is a fungal infection of the nail unit and one of the common nail diseases that occurs commonly in diabetic patients. It poses a threat of diabetic foot complications to diabetics and negatively affects the quality of life of the patients.

**OBJECTIVES:** The overall aim of the study was to determine the prevalence and clinical features of onychomycosis in diabetics, as well as the spectrum of causative fungi in Nigeria as compared with age and sex-matched controls.

**METHODOLOGY:** This was a hospital-based, comparative cross-sectional study. One hundred and fifty consecutive adult diabetics and 150 healthy controls (accompanied persons and staff) matched for age and sex were recruited from the Diabetic Clinics and the Dermatology Clinic of the University of Nigeria Teaching Hospital, Ituku-Ozalla. The participants were interviewed using a pre-tested structured questionnaire, nail scrapings were collected for fungal studies, and clippings for nail histopathology using Periodic Acid Schiff.

**RESULTS:** The prevalence of onychomycosis among DM subjects was 45.3% vs. 35.3% in controls, which was not statistically significant (P value 0.078). Distal-lateral subungual onychomycosis was the most common clinical type in both study groups and presented mainly with nail discolouration, onycholysis, and subungual hyperkeratosis. The most common fungi isolated were dermatophytes (*Trichophyton soudanense*), non-dermatophytes (*Aspergillus* spp.), and *Candida* species (*Candida albicans*).

**CONCLUSION:** Onychomycosis in diabetics is a very common nail disorder in the South-Eastern part of Nigeria with a high prevalence. The presence of foot ulcers was associated with onychomycosis in diabetics, and they were more likely to have non-dermatophytic onychomycosis. **WAJM 2024; 41 (4): 363 - 371.**

**KEYWORDS:** Onychomycosis, Diabetes mellitus, Prevalence, Fungi, Nigeria.

### RÉSUMÉ

**INTRODUCTION:** L'onychomycose est une infection fongique de l'unité de l'ongle et l'une des maladies des ongles les plus courantes chez les patients diabétiques. Elle pose une menace de complications du pied diabétique et affecte négativement la qualité de vie des patients.

**OBJECTIFS:** L'objectif général de l'étude était de déterminer la prévalence et les caractéristiques cliniques de l'onychomycose chez les diabétiques, ainsi que le spectre des champignons causaux au Nigeria par rapport à un groupe témoin apparié selon l'âge et le sexe.

**MÉTHODOLOGIE:** Il s'agissait d'une étude transversale comparative réalisée en milieu hospitalier. Cent cinquante diabétiques adultes consécutifs et 150 témoins sains (personnes accompagnatrices et personnel) appariés selon l'âge et le sexe ont été recrutés dans les cliniques de diabète et la clinique de dermatologie de l'Hôpital Universitaire du Nigeria à Ituku-Ozalla. Les participants ont été interrogés à l'aide d'un questionnaire structuré pré-testé, des échantillons de grattage d'ongles ont été prélevés pour des études fongiques, et des échantillons pour l'histopathologie des ongles utilisant l'acide périodique de Schiff.

**RÉSULTATS:** La prévalence de l'onychomycose chez les sujets atteints de diabète était de 45,3 % contre 35,3 % chez les témoins, ce qui n'était pas statistiquement significatif (valeur de p 0,078). L'onychomycose sous-unguéele distale-latérale était le type clinique le plus courant dans les deux groupes d'étude et se manifestait principalement par une décoloration des ongles, une onycholyse et une hyperkératose sous-unguéele. Les champignons les plus couramment isolés étaient les dermatophytes (*Trichophyton soudanense*), les non-dermatophytes (*Aspergillus* spp.) et les espèces de *Candida* (*Candida albicans*).

**CONCLUSION:** L'onychomycose chez les diabétiques est un trouble des ongles très courant dans le sud-est du Nigeria avec une prévalence élevée. La présence d'ulcères du pied était associée à l'onychomycose chez les diabétiques, et ils étaient plus susceptibles de présenter une onychomycose non-dermatophytique. **WAJM 2024; 41 (4): 363 - 371.**

**MOTS-CLÉS:** Onychomycose, Diabète sucré, Prévalence, Champignons, Nigeria.

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**ABBREVIATIONS:** AIDS: Acquired Immunodeficiency Syndrome; DM: Diabetes Mellitus; HIV: Human Immunodeficiency Virus; KOH: Potassium Hydroxide; NDM: Non-Dermatophyte Moulds; OSI: Onychomycosis Severity Index; PAS: Periodic Acid Schiff; PCR: Polymerase Chain Reaction; PCR-RFLP: Polymerase Chain Reaction-Restriction Fragment Length Polymorphism; RBG: Random blood glucose; SDA: Sabouraud Dextrose Agar; UNTH: University of Nigeria Teaching Hospital; WHO: World Health Organisation; DLSO: Distal Lateral Subungual Onychomycosis; TDO: Total Dystrophic Onychomycosis; WSO: White Superficial Onychomycosis; PSO: Proximal Subungual Onychomycosis