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## ORIGINAL ARTICLE

### Pure Tone Audiometry and Otoacoustic Emission Evaluation of Hearing Loss in Diabetic Patients in a Selected Urban Population of South-West Nigeria

*Audiométrie Tonale et Émission Otoacoustique : Évaluation de la Perte Auditive Chez les Patients Diabétiques dans une Population Urbaine Sélectionnée du Sud-Ouest du Nigeria*

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#### ABSTRACT

**BACKGROUND:** Diabetes Mellitus (DM) is a clinical condition which is characterized by persistent hyperglycemia resulting from insulin deficiency and/or insulin resistance. The spectrum of hearing impairments among patients with diabetes is wide with majority of the hearing problems not specific to patients with DM. The current study is aimed to evaluate the hearing loss in Diabetic Mellitus patients in a selected urban population of south-west Nigeria using pure tone audiometry and otoacoustic emission evaluation. It will correlate the audiological findings with factors such as age, gender, glycemic status, and duration of DM.

**METHODS:** A cross sectional progressive study was carried out from January 2021 to December 2021 on randomly selected 95 consecutive diabetic patients visiting the departments of Otorhinolaryngology and Medicine.

**RESULTS:** A total of 95 DM patients attending the ENT clinics of the hospital consented and participated in the study. Their ages ranged from 43 to 82 years and had a mean of  $65.3 \pm 8.4$  years. Majority of the patients were females (73.7%); female-to-male ratio was approximately 3:1. About half of them were already retired (49.5%) while more than half had at least a tertiary level of education (53.7%). 8.4% were reported to have discharge from their ears, 24.2% had itchy sensations and 5.3% had recurrent nasal discharge. The prevalence of hyperglycemia was 36.8% in the subjects; while another 5.3% were hypoglycemic.

**CONCLUSION:** Hearing impairment is significantly associated with the DM and other risk factors in DM patients including older age, occupation, poor glycemic controls, undue noise and alcohol consumption. **WAJM 2023; 40(6): 623–629.**

**Keywords:** Diabetic Mellitus, Hearingloss, Audiometry, Otoacoustic emission.

#### RÉSUMÉ

**CONTEXTE:** Le diabète sucré (DM) est un état clinique caractérisé par une hyperglycémie persistante résultant d'une carence en insuline et/ou d'une résistance à l'insuline. L'étude actuelle vise à évaluer la perte auditive chez les patients atteints de diabète sucré dans une population urbaine sélectionnée du sud-ouest du Nigeria en utilisant l'audiométrie tonale et l'évaluation de l'émission otoacoustique. Elle mettra en corrélation les résultats audiologiques avec des facteurs tels que l'âge, le sexe, le statut glycémique et la durée du diabète.

**MÉTHODES:** Une étude transversale progressive a été menée de janvier 2021 à décembre 2021 sur 95 patients diabétiques consécutifs sélectionnés au hasard et se rendant dans les départements d'oto-rhino-laryngologie et de médecine.

**Résultats:** Au total, 95 patients diabétiques consultant les cliniques ORL de l'hôpital ont consenti à participer à l'étude. Leur âge variait de 43 à 82 ans, avec une moyenne de  $65,3 \pm 8,4$  ans. La majorité des patients étaient des femmes (73,7 %) ; le rapport femmes-hommes était d'environ 3:1. Environ la moitié d'entre eux étaient déjà à la retraite (49,5 %), tandis que plus de la moitié avaient au moins un niveau d'éducation tertiaire (53,7 %). 8,4 % des patients ont déclaré avoir des écoulements dans les oreilles, 24,2 % des démangeaisons et 5,3 % des écoulements nasaux récurrents. La prévalence de l'hyperglycémie était de 36,8 % chez les sujets, tandis que 5,3 % étaient hypoglycémiques.

**CONCLUSION:** La déficience auditive est significativement associée au diabète et à d'autres facteurs de risque chez les patients atteints de diabète, notamment l'âge avancé, la profession, les mauvais contrôles glycémiques, le bruit excessif et la consommation d'alcool. **WAJM 2023; 40(6): 623–629.**

**Mots-clés:** Diabète sucré, Perte auditive, Audiométrie, Émission otoacoustique.

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