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Impact of Seasonal Changes on Asthma Control in North-Western Nigeria

Impact Des Changements Saisonniers Sur Le Contrôle De L'asthme Dans Le Nord-Ouest Du Nigeria

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ABSTRACT

BACKGROUND: Asthma control is poor worldwide and is often affected by changes in environmental conditions. Effort to determine the cause of this heavy burden on patients and the healthcare system is crucial.

AIM: To determine the role of seasonal changes on asthma control in Sokoto, North-Western Nigeria

METHODS: One hundred and one (101) patients with physician-diagnosed asthma were consecutively recruited after obtaining informed consent. A structured researcher administered questionnaire was used as instrument of data collection and asthma control test questionnaire was also used to assess level of asthma control in each participant. Five items with a 4-week recall were assessed. Data for temperature, humidity, wind and rain was obtained from the Nigerian Meteorological Agency (NIMET), Sokoto. We computed frequency and level of asthma control with seasons of the year and weather variables.

RESULTS: One hundred and one patients comprising 71 females and 30 males with a mean age of 32.14 ± 10.68 years participated in the study.

Level of asthma control was found to be poor among the participants with 41(40.6%) having very poorly controlled asthma, 30(29.7%) with not well controlled and 30(24.8%) well controlled asthma respectively. Among patients with very poorly controlled asthma, 22(48.9%) occurred during harmattan season and 14(31.1%) during rainy season. Weather parameters such as humidity shows significant relationship with asthma control ($B = -0.504$, $P = 0.031$, 95% CI [-0.012, -0.0253]).

CONCLUSION: The study shows that asthma control is poor among the participants and presentation with poor asthma control is more during harmattan season. **WAJM 2023; 40 (12): 1304 - 1310**

KEYWORDS: Asthma, Asthma control, Season, Harmattan.

RÉSUMÉ:

CONTEXTE: Le contrôle de l'asthme est médiocre dans le monde entier et est souvent affecté par les changements des conditions environnementales. L'effort pour déterminer la cause de ce lourd fardeau pour les patients et le système de santé est crucial.

OBJECTIF: Déterminer le rôle des changements saisonniers sur le contrôle de l'asthme à Sokoto, dans le nord-ouest du Nigeria.

MÉTHODES: Cent un (101) patients atteints d'asthme diagnostiqué par un médecin ont été recrutés de manière consécutive après avoir obtenu leur consentement éclairé. Un questionnaire structuré administré par le chercheur a été utilisé comme instrument de collecte de données et le questionnaire de test de contrôle de l'asthme a également été utilisé pour évaluer le niveau de contrôle de l'asthme chez chaque participant. Cinq éléments avec une période de rappel de 4 semaines ont été évalués. Les données sur la température, l'humidité, le vent et la pluie ont été obtenues auprès de l'Agence météorologique nigérienne (NIMET) de Sokoto. Nous avons calculé la fréquence et le niveau de contrôle de l'asthme en fonction des saisons de l'année et des variables météorologiques.

RÉSULTATS: Cent un patients, comprenant 71 femmes et 30 hommes, avec un âge moyen de $32,14 \pm 10,68$ ans, ont participé à l'étude.

Le niveau de contrôle de l'asthme s'est avéré médiocre parmi les participants, avec 41 (40,6 %) ayant un asthme très mal contrôlé, 30 (29,7 %) un asthme non bien contrôlé et 30 (24,8 %) un asthme bien contrôlé, respectivement. Parmi les patients souffrant d'asthme très mal contrôlé, 22 (48,9 %) ont été signalés pendant la saison de l'harmattan et 14 (31,1 %) pendant la saison des pluies. Les paramètres météorologiques tels que l'humidité montrent une relation significative avec le contrôle de l'asthme ($B = -0,504$, $P = 0,031$, IC à 95 % [-0,012, -0,0253]).

CONCLUSION: L'étude montre que le contrôle de l'asthme est médiocre parmi les participants et que les cas d'asthme mal contrôlé sont plus fréquents pendant la saison de l'harmattan.

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MOTS-CLÉS: Asthme, Contrôle de l'asthme, Saison, Harmattan

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Abbreviations:

ICS: Inhaled Corticosteroids; **LABA:** Long Acting Beta-Agonist; **FEV1:** Forced Expiratory Volume in one second; **FVC:** Forced Vital Capacity; **FEV1/FVC:** Forced expiratory volume in one second and Forced vital Capacity ratio; **OPTIMA:** Oxis and Pulmicort Turbuhaler in the Management of Asthma; **EML:** Emergency Medicine List