

VOLUME 40, NUMBER 4
April 2023

ISSN 0189 - 160X

WAJM

WEST AFRICAN JOURNAL OF MEDICINE

ORIGINALITY AND EXCELLENCE IN MEDICINE AND SURGERY



OFFICIAL PUBLICATION OF
THE WEST AFRICAN COLLEGE OF PHYSICIANS *AND*
WEST AFRICAN COLLEGE OF SURGEONS



www.wajmed.org



TABLE OF CONTENTS

GENERAL INFORMATION	1C
INFORMATION FOR AUTHORS	1F
EDITORIAL NOTES – The Double Burden of Communicable and Non-Communicable Diseases – G. E. Erhabor	353
The Resurging Outbreaks of Yellow Fever Infection – T. O. Olajubu, G. E. Erhabor.....	354
ORIGINAL ARTICLES	
An Evaluation of Platelet Factor 4, Beta-Thromboglobulin and Mean Platelet Volume in the Assessment of Thrombotic Risks in Subjects with Diabetic Mellitus Subjects at Lagos State University Teaching Hospital, Ikeja, Lagos, Nigeria.....	357
A. O. Dada, O. A. Dada, A. A. Akinbami, A. R. Bamiro, I. E. Uche, O. I. Adeyemi, O. A. Kareem, O. B. Okunowo, M. R. Dosu	
Assessment of Drug History Information in Referral Letters to the Antiretroviral Therapy Outpatient Specialist Clinic of a Federal Teaching Hospital in Ilorin.....	362
O. A. Agede, M.O Bojuwoye, J. A. Ogunmodede	
Assessment of Healthcare-Seeking Behaviour and Self-Medication among Adult Patients with Gastrointestinal Symptoms at a Rural Clinic in the Niger Delta of Nigeria.....	367
N. P. Dienye, C. Imarhiagbe, A. I. Dan-Jumbo, P. O. Dienye, S. Uriah, N. O. Nnadi, C. O. Akinla	
Effect of an Antidepressant on Medication Adherence among Type 2 Diabetic Patients with Depression Accessing Care in GOPC of FETHI.....	375
O. E. Gabriel-Alayode, S. L. Omotola, O. T. Elegbede, O. A. Ajetunmbi, S. M. Agboola, A. K. Jimoh, A. O. Elegbede	
Evaluation of Homocysteine Status and its Correlation with Disease Severity in Individuals with Sickle Cell Anaemia in Steady State.....	382
N. I. Ugwu, P. O. Manafa, S. E. Agina, C. E. Onah, E. C. Okocha	
Knowledge, Attitude and Practice in the Prevention of Nosocomial Infections among the Hospital Staff of a Nigerian Tertiary Hospital.....	389
E. F. Mbon, O. V. Chimezie, O. Ehioghae, O. A. Adesegun, B. E. Fikayo	
Psychometric Properties of the Modified Family Affluence Scale (FAS II) among Adolescents in Nigeria: A Preliminary Report.....	397
F. I. Eleazu, B. E. Edet, E. A. Essien, C. J. Okafor, A. C. Okoro, O. Udofia	
Relationship between Periodontal Disease, Dental Caries and the Risk Indicators for Cardiovascular Disease in Lagos, Nigeria.....	404
A. Oyapero, L. L. Enone, R. Moronkola, R. O. Ojikutu	
Bone Mineral Density and Vitamin D Status in Nigerians: The Impact of HIV.....	414
E. E. Abene, Z. M. Gimba, H. Rawizza, G. Odoh, G. A. Amusa, D. Y. Chundusu, L. C. Imoh, E. I. Agaba, S. A. Sagay	
Vascular Access in Hemodialysis: Peculiarities in a Low-Income Setting, Pattern, Prevalence and Relationship with Intradialysis Events and Dialysis Dose.....	421
P. K. Uduagbamen, M. Sanusi, F. O. Soyinka, O. B. Udom, A. F. Ogunlade, O. A. Omokore, C. C. Emmanuel	
Yellow Fever Disease: Pattern of Presentation of Patients in Federal Medical Centre, Asaba, Delta State, Nigeria	428
A. Q. Aigbokhaode, N. L. Orhue, A. O. Ojimba, F. C. Ugoeze, C. E. Origbo, D. Caleb, S. I. Ezemenahi, N. P. Ekhaton, U. Mkpuma, J. I. Okereke, V. A. Osiatuma, E. O. Ezunu	
Outcome of Patients with Common Endocrine Diseases Who Had COVID-19 in two Centers in Lagos, Nigeria: A Cross-Sectional Study.....	435
O. Oluwale, W. Fashola, O. B. Olopade, I. A. Odeniyi, O. A. Fasanmade	
Gender Differences in Clinical Characteristics and Lifestyle Behaviours of Overweight and Obese Adolescents.....	438
N. J. Iduoriyekemwen, M. T. Abiodun, W. E. Sadoh, A. N. Onyiriuka	
A Review of Scrotal Ultrasonography in Uyo, Nigeria.....	445
N. N. Nwafor, I. P. Eyo, O. D. Ogholoh, C. C. Nwafor	
CASE REPORT	
Premature Atherosclerotic Cardiovascular Disease: A Case of Myocardial Infarction Seven Years after Bentall Procedure in a Nigerian Man.....	452
B. T. Osibowale, O. S. Ogah, A. A. Adebiyi, V. A. Obasuyi, K. T. Adeleke, O. O. Oresgun, A. Aje, A. M. Adeoye	
INDEX TO VOLUME 40, NO. 4, 2023	
Author Index	456
Subject Index	457



Outcome of Patients with Common Endocrine Diseases Who Had COVID-19 in two Centers in Lagos, Nigeria: A Cross-Sectional Study

Résultats des Patients Atteints de Maladies Endocriniennes Courantes Ayant Subi une COVID-19 dans Deux Centres de Lagos, au Nigeria : Une Étude Transversale

¹*O. Oluwole, ²W. Fashola, ³O. B. Olopade, ³I. A. Odeniyi, ³O. A. Fasanmade

ABSTRACT

BACKGROUND: Endocrine diseases are ubiquitous. In our environment, diabetes mellitus (DM), obesity and thyroid disorders represent the most common examples. Diabetes mellitus is a global health problem with a myriad of complications. We sought to evaluate outcome in terms of fatality in those with common endocrine diseases who were infected with COVID-19.

AIMS AND OBJECTIVES: To determine outcome in terms of mortality in patients with common endocrine diseases who contracted COVID-19.

MATERIALS AND METHODS: We conducted an observational, descriptive, cross-sectional study with 120 participants drawn from the endocrinology/DM clinic at the Lagos University Teaching Hospital and Serenity Hospital, Surulere (a private medical clinic). Data collected included age, gender, type of endocrine disease, comorbid diseases, and COVID-19 status. Through charts from the medical records department, outcome of participants in terms of mortality was determined.

RESULTS: Data of 120 subjects were analyzed. There were 61 males and 59 females, yielding a male:female ratio of 1:1. Mean age was 58 years and the mode was 46 years. Over half (88) of the patients had diabetes mellitus, 22 had obesity, and 17 had thyroid disorders. The case fatality rate of patients with endocrine diseases who had COVID-19 was 11%, with about 85% of these deaths occurring in the elderly (those aged above 60 years). Ninety-two percent of the patients who died had type 2 DM. Approximately 80% of patients who were infected with COVID-19 had at least one co-morbid disease.

CONCLUSION: Older age, type 2 diabetes mellitus, and the presence of at least one comorbidity were associated with increased mortality in patients with endocrine diseases who were infected with COVID-19 in our study. **WAJM 2023; 40(4): 435–437.**

Keywords: Endocrine diseases, COVID-19, Comorbidities, Metabolic syndrome.

RÉSUMÉ

CONTEXTE: Les maladies endocriniennes sont omniprésentes. Dans notre environnement, le diabète sucré, l'obésité et les troubles thyroïdiens en sont les exemples les plus courants. Le diabète est un problème de santé mondial qui s'accompagne d'une myriade de complications. Nous avons cherché à évaluer l'issue en termes de mortalité chez les personnes atteintes de maladies endocriniennes courantes qui ont été infectées par COVID-19.

BUTS ET OBJECTIFS: Déterminer l'issue en termes de mortalité chez les patients atteints de maladies endocriniennes courantes qui ont contracté COVID 19.

MATÉRIEL ET MÉTHODOLOGIES: Nous avons mené une étude observationnelle, descriptive et transversale auprès de 120 participants provenant de la clinique d'endocrinologie/DM de l'hôpital universitaire de Lagos et de l'hôpital Serenity, Surulere (clinique médicale privée). Les données recueillies comprenaient l'âge, le sexe, le type de maladie endocrinienne, les maladies concomitantes et le statut COVID-19. Les résultats des participants en termes de mortalité ont été déterminés à partir des dossiers médicaux.

RÉSULTATS: Les données de 120 sujets ont été analysées. Il y avait 61 hommes et 59 femmes, avec un ratio homme/femme de 1:1. L'âge moyen était de 58 ans, le mode de 46 ans. Plus de la moitié [88] des patients souffraient de diabète sucré. 22 patients souffraient d'obésité et 17 de troubles thyroïdiens. Le taux de létalité des patients souffrant de maladies endocriniennes et atteints de COVID-19 était de 11 %, 85 % de ces décès survenant chez des personnes âgées, c'est-à-dire de plus de 60 ans. 92 % des patients décédés souffraient de diabète de type 2. Environ 80 % des patients infectés par COVID-19 présentaient au moins une maladie concomitante.

CONCLUSION: L'âge avancé, le diabète de type 2, la présence d'au moins une comorbidité sont associés à une mortalité accrue chez les patients atteints de maladies endocriniennes et infectés par COVID-19 dans notre étude. **WAJM 2023; 40(4): 435–437.**

Mots-clés: Maladies endocriniennes, COVID-19, comorbidités, syndrome métabolique.

¹Benjamin Carson School of Medicine, College of Health and Medical Sciences, Ogun State, Nigeria.

²General Medicine, Serenity Hospital and Remilekun Memorial Medical Centre, Lagos State, Nigeria.

³Departments of Medicine, Lagos University Teaching Hospital, Idi-Araba, Lagos State, Nigeria.

*Correspondence: Dr. Oluwole, O. A., Benjamin Carson School of Medicine, College of Health and Medical Sciences, Ogun State, Nigeria.
Email: pelumoluwole@yahoo.com

INTRODUCTION

The impact of COVID-19 since its inception has been dramatic. The disease has been responsible for significant mortality and morbidity. The impact has been more catastrophic for immuno-compromised patients.¹ Endocrine diseases are a varied spectrum of diseases related to disordered hormone production, release or receptor sensitivity. They are extremely common and the most common ones in our environment are diabetes mellitus, thyroid diseases, and metabolic syndrome.² There is scant data in Nigeria regarding mortality outcome among patients with endocrine diseases who had COVID-19 infection. This study aimed at evaluating outcome in terms of mortality in patients with these common endocrine diseases who had COVID-19.

MATERIALS AND METHODS

This study was conducted across two centers in September 2020. It was an observational, descriptive, cross-sectional study via chart of 120 COVID-19-positive participants from endocrinology/DM clinic at the Lagos University Teaching Hospital and Serenity Hospital, Surulere (a private medical clinic). Data collected included age, gender, endocrine disease, COVID status and other co-morbidities. These data were inputted in Microsoft excel for analysis. The descriptive statistics considered in this study were the mean, mode, standard deviation, and standard error. Online resources such as Pubmed and Cochrane library were checked for similar works on the topic.

RESULTS

Data of 120 subjects were analyzed. There were 61 males and 59 females, with a male:female ratio of about 1:1. Mean age was 58 with a standard deviation of 12 years. The age variance was 164 with a standard error of mean of 1.2. The oldest age was 87 years and youngest age was 30 with a range of 57 years. The mode was 46 years. Over half (88) of the patients had DM, 22 patients had obesity while there were 17 with thyroid disorders. The case fatality rate of patients with endocrine diseases who had COVID-19 was calculated at 11%,

with about 85% of these deaths occurring in the elderly (those above 60 years). Ninety-two percent of the patients who died had DM. Approximately 80% of patients who were infected with COVID-19 had at least one other comorbid disease, with about 75% of COVID-19 infected patients who died having at least one other comorbidity such as chronic kidney disease or hypertension. Twenty-five percent of patients who died did not have any known comorbidity. Fifty-eight percent of case fatality occurred in males while 42% were females. It was also noted that 61% of patients who died had comorbid hypertension.

DISCUSSION

Results from this study showed that over 70% of patients who tested positive had diabetes mellitus, with 92% of patients who had COVID-19 and diabetes mellitus dying. These staggering figures suggest that diabetes mellitus is associated with higher COVID-19 infection and subsequent mortality. Data from similar studies show a similar pattern of increased incidence of COVID-19 in DM patients.³ It is known that chronic hyperglycemia has harmful effects on innate immunity and causes cellular dysfunction and impaired chemotaxis.⁴ Chronic hyperglycemia is also associated with increased angiotensin converting enzyme expression which is abundant at the COVID-19 binding site.⁵ This constellation of factors is likely responsible for increased susceptibility to COVID-19 in DM patients and increased risk of mortality in patients with DM who have COVID-19. A meta-analysis of about 30 studies showed that diabetes mellitus was associated with higher mortality, increased severity and increased frequency of acute respiratory distress syndrome (ARDS).⁶ Patients with diabetes mellitus who have symptomatic COVID-19 infection are typically treated with high-dose glucocorticoids like dexamethasone because it has been shown to reduce mortality. This effect comes at a cost for patients with diabetes mellitus as it can trigger hyperglycemic hyperosmolar state in them. Other contributors to increased death in patients with COVID-19 could be related to reduced access to

medical care due to the prolonged lockdown causing collateral damage in these patients. COVID-19-induced hyperglycemic emergencies might also have been a contributor to death in patients with diabetes mellitus who were infected with the virus. For all these reasons, advocacy for inclusion of patients with diabetes mellitus in early phase COVID-19 vaccination has been made.⁷ It has also been noted in a study that there was an increase in mortality in patients with COVID-19 who received insulin treatment.⁸ Obesity is similarly associated with adverse outcome in patients with COVID-19. Twenty-two patients in our study had some degree of obesity. Approximately 18% of patients who died in our study had some degree of obesity. This relatively modest value, which may be due to a relatively low ratio of obese patients compared to our total study population, contrasts with a meta-analysis of studies reporting the risk of mortality among patients with COVID-19 which showed that obesity was associated with an increased risk of death from COVID-19.⁹

In patients with endocrine disease who were infected with COVID-19, our study results showed that older age (particularly the elderly) was associated with increased risk of death, with almost 90% of deaths in the study occurring in patients older than 60 years. This is similar to the findings of a study done across 16 countries which observed that the elderly population had strikingly higher COVID-19 case fatality rates compared to younger individuals.¹⁰ The impact of age on survival may be related to waning immunity and may have been a potential confounder of the true outcome in patients with endocrine diseases who had COVID-19 infection. Compared to a study which tried to evaluate COVID-19 mortality risk for men and women that showed a significant male fatality of 77% compared to females,⁸ our study showed only a modest difference in fatality of males (58%) compared to their female counterparts.

It was noted in this study that the presence of at least one co-morbid disease was associated with increased risk of COVID-19 infection in patients

with endocrine disease in the study population with 80% of patients who had COVID-19 having at least one other comorbidity. The most common comorbidities were hypertension and chronic kidney disease. About 75% of patients that had endocrine diseases who were also infected with COVID-19 and had other co-morbidities as listed above died. The presence of comorbidities was associated with more infection with COVID-19 and increased death. With a case fatality of 11% among the 120 participants, and majority of patients who did not die having no comorbidity, these huge values associated with comorbid states may serve as potential confounders as to the true relationship of fatality outcome between endocrine diseases and COVID-19 status in our study. There is evidence that poorer outcomes are associated with comorbidities as seen in a retrospective descriptive study at the Dr. Wahidin Sudirohusodo hospital in Indonesia which assessed about 450 patients and potential risk factors. The prevalent comorbidities associated with death in that study were hypertension, cardiovascular disease, diabetes, chronic kidney disease, and obesity.¹¹ Male sex, older age, obesity, diabetes, and chronic kidney disease were described as important risk factors for poor COVID-19 outcome according to a meta-analysis of about 40 studies¹² Our study also showed that 60% of patients who died had comorbid hypertension. Hypertension itself has been associated with worse outcome in patients infected with COVID-19¹³ There was a hypothesis that some classes of antihypertensives, particularly the angiotensin converting enzyme inhibitors, increase COVID-19 severity, but several studies have found no association between the use of this class of medication and severity of COVID-19 disease.¹⁴

This study aimed to bridge the knowledge gap and provide research information in Nigeria on the outcome of patients with endocrine diseases infected with COVID-19 with data from two centers. Knowledge of these outcomes would influence primary preventive practices and health promotion for groups at higher risk of poor outcome. Aggressive treatment in the vulnerable groups may be warranted to prevent poor outcome. The effect of age and comorbidity cannot be overstated in COVID-19 prognosis. Further research and analysis are needed to detect the true prognosis in terms of fatality of COVID-19 in patients with endocrine diseases in Nigeria whilst adjusting for potential confounders of age and comorbidity.

CONCLUSION

Endocrine diseases are common and on their own are associated with significant morbidity and mortality. Infection with COVID-19, especially in those with multiple comorbidities, is a harbinger for dismal outcome in terms of survival.

REFERENCES

1. Goldman JD, Robinson PC, Uldrick, TS, Ljungman P. COVID-19 in Immunocompromised populations: Implications for prognosis and repurposing of Immunotherapies. *Journal for Immunotherapy of Cancer*. 2021; **9**.
2. Ayotunde, O.A, Olatunde, O Spectrum of endocrine disorders as seen in a tertiary health facility in Sagamu, Southwest Nigeria. *Nigerian Medical Journal*. 2019; **60**: 252–256.
3. Awadesh K, Ritesh G, Amerta, G, Anoop, M Diabetes in COVID-19: Prevalence, Pathophysiology, Prognosis and Practical considerations, *Diabetes Metabolic Syndrome Journal* 2020; **14**: 303–310.
4. Suheda E Diabetes, infection risk and COVID-19; *Molecular metabolism*. *Science Direct Journal*. 2020; **13**: 101044.
5. Saikat S, Raja C, Pratap K, Manash P, Diabetes mellitus and COVID-19- Understanding the association in light of current evidence. *World Journal of Clinical Cases*. 2021; **9**: 8327–8339.
6. Ian H, Michael A Raymond P, Diabetes Mellitus is associated with Increased Mortality and Severity of disease in COVID-19 pneumonia – A systematic review. Meta- analysis and Meta-regression. *Diabetes and Metabolic Syndrome Journal* 2021; **14**: 395–403.
7. Stefan R, Francesco R, Barbara L, Hannes R, Peter S, *et al*. Consequences of the COVID-19 pandemic for patients with Metabolic disease. *Nature Metabolism Journal*. 2021; **3**: 289–292.
8. Yu B, Li C, Sun Y, Wang DW. *Cell Metabolism Journal*. 2021; **33**: 65–77.e62.
9. Tahmina NP, Mohaimenul I, Hsuan C, Y, Ming C, L, *et al*. Obesity and mortality among patients diagnosed with COVID-19: A systematic review and meta-analysis. *Frontiers Medical Journal*. 2021; **2021**: 620044.
10. Yanez N.D, Weiss N. S, Romand J.A, COVID-19 mortality risk for older men and women. *BMC Public Health*. 2020; **20**: 1742.
11. Irawaty D, Nurjannah I (2021) Co-morbidities and mortality in COVID-19 patients. *Gaceta Sanitaria*. 2021; **35**: s530–s532.
12. You I, Thulani A, Harish N, Risk factors for poor outcomes in hospitalized COVID-19 patients: A systematic review and Meta-analysis. *Journal of Global Health*. 2021; **11**: 10001.
13. Akin A, Akin O, Kingsley A, *et al*. Morbidity and Mortality outcomes of COVID-19 patients with and without hypertension in Lagos, Nigeria: a retrospective cohort study. *Global Health Res Policy*. 2021; **6**: 28.
14. Gao C, Cai Y, Zhang K, Zhou L, *et al*. Association of hypertension and antihypertensive treatment with COVID-19 mortality: A retrospective observational study. *Eur Heart Journal*. 2020; **41**: 2058–2066.