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TABLE OF CONTENTS

GENERAL INFORMATION	1C
INFORMATION FOR AUTHORS	1F
EDITORIAL NOTES – From the Editor-in-Chief	775
G. E. Erhabor	
– Decolonizing Medical Training for Development Impact in West Africa	776
Friday Okonofua	
ORIGINAL ARTICLES	
Burden, Severity and Characteristic Pattern of Coronary Artery Disease using 160-Slice Computed Tomographic Angiography: Earliest Report from Northern Nigeria	779
A. Ismail, Y. Lawal, K. Isyaku, I. Garba, J. A. Ismail, A. M. Tabari, M. S. Umar	
Audit of Preoperative Fasting for Elective General Surgeries in the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria	786
A. O. Adesunkanmi, A. E. Ubom, C. U. Ndegbe, A. M. Olugbami, O. I. Aaron, F. O. Wuraola, O. Olasehinde	
Determinants and Outcomes for Neonatal Septicaemia at the Federal Medical Centre Bida, North Central Nigeria	792
G. Ahmed, G. O. Oladele, A. Usman, O. Adesiyun, A. O. Olowu	
Knowledge Levels and Predictors of Venous Thromboembolism among Pregnant Women in Nigeria: A Cross-Sectional Survey for the ‘Move for Flow’ Programme	799
C. P. Ojukwu, T. U. Nwagha, L. C. Agbo, A. U. Ezeigwe, P. Okorie	
Knowledge of Healthcare Professionals on Hepatitis B Virus Infection and Vaccination Uptake in a Tertiary Hospital in Nigeria	808
S.T. Suleiman, M.K. Ogunfemi, M.O. Bojuwoye, K.O. Omokanye, A.H. Bello, S.O. Idris, A. Ahmed, J.O. Oni, J. Imran, C.I. Oyewopo	
Knowledge, Attitude and Practice of Shisha Smoking among Undergraduates in a Private Tertiary Institution in Nigeria: A Cross-Sectional Study	814
J. O. Ogunkoya, K. J. Sodeinde, F. E. Bamidele, A. E. Ladele, O. Abiodun, O. T. Imishue, O. Ehioghae, O. A. Ogunkoya	
Oral Disorders and Serum Oestrogen Levels in Postmenopausal Women in Lagos, Nigeria	820
K. O. Ojo, O. M. Eweka, P. O. Ayanbadejo, T. A. Oshodi, F. J. Owotade	
Outcome of Combined Trabeculectomy-Trabeculectomy in Eyes of Nigerian Children with Primary Congenital Glaucoma	826
M. O. Ugalahi, A. O. Adeyemo, B. A. Olusanya, A. M. Baiyeroju	
Predictors of Anaemia among Pregnant Women Booking for Antenatal Care at Federal Medical Centre, Bida, Niger State, Nigeria	831
A. C. Ekpe, S. A. Adefemi, M. D. Pemi	
Cardiovascular Risk Factors in the 21st Century in a Semi-Urban Slum in North-Central Nigeria	838
G. O. Osaigbovo, L. C. Imoh, T. Afolaranmi, A. I. Zoakah	
COVID-19 Infection Prevention and PPE Use: A Cross-Sectional Survey of Maternity Health Care Workers’ Perspectives and Practices in a Tertiary Hospital, Nigeria	850
T. O. Kuye-Kuku, A. M. Olumodeji, F. D. H. Olalere, J. O. Chionuma, A. O. Aborisade, U. G. Ofulue	
Awareness and Knowledge of Breast Cancer and Breast Examination amongst Undergraduate Students. Mixed Method Approach	857
O. Y. Makinde, F. O. Wuraola, A. A. Aderounmu, T. O. Ugalahi, O. Olasehinde, A. O. Adisa	
A Multicenter Retrospective Cohort Study of the Profile of Seminal Fluid Analyses of Men Seeking Fertility Care at Different Hospitals	863
A. O. Ugwu, E. P. Igbodike, R. Funtua Anas, O. A. Kusamotu, A. Adefemi, O. Anyobode, C. J. Okeke, B. S. Umezulike, J. S. Shehu, S. Ige, N. E. Harrison, S. A. Ayeni, A. L. Okpara, P. Soibi-Harry, H. O. Ngwu, C. C. Makwe, E. O. Ugwu, J. I. Achara, J. A. Olamijulo, S. Garba, R. Garba, S. I. Omisakin	
SHORT COMMUNICATION	
A Call for Regular Ophthalmologist Cover for Rehabilitation Centers for the Blind	869
A. O. Adio, U. Udo	
CASE REPORT	
Mpox and Chicken Pox Coinfection Complicated by Acute Urinary Retention: A Case Report	873
A. E. Onukak, C. N. Nga, B. C. Ubani, E. Umoinkwe, N. Umoette	
MEDICAL EDUCATION	
Training of Doctors at the Geriatric Centre, University College Hospital, Ibadan, Nigeria	877
L. A. Adebuseye, O. O. Olowookere, E. O. Cadmus	
INDEX TO VOLUME 40, NO. 8, 2023	
Author Index	883
Subject Index	884



Determinants and Outcomes for Neonatal Septicaemia at the Federal Medical Centre Bida, North Central Nigeria

Déterminants et Résultats de la Septicémie Néonatale au Centre Médical Fédéral de Bida, au Centre-Nord du Nigeria

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ABSTRACT

BACKGROUND: Neonatal septicaemia (NNS) occurs during the first 28 days of life and is characterized by systemic bacterial infection proven by blood culture. It is a leading cause of morbidity and mortality in neonates. Determinants of NNS vary between locations forming the basis for this study.

OBJECTIVE: To determine the prevalence and the predisposing factors to neonatal septicaemia among neonates admitted to the neonatal intensive care unit (NICU) of Federal Medical Centre, Bida (FMC Bida).

METHODS: This was a one-year prospective observational study, 167 neonates admitted to the neonatal intensive care unit (NICU) of FMC Bida, were selected by purposive sampling method to participate in the study from 13th May, 2015 to 30th April, 2016. A structured questionnaire was filled out by consenting parents and blood samples were collected for laboratory analysis. The data was analyzed using SPSS version 20 (2016). The data were summarized using frequency distributions, means, standard deviation, charts and tables while statistical significance was determined using the chi-square test and Fisher's exact test at a 5% level of significance as well as Odd's Ratio (OR) as appropriate.

RESULTS: Of the 167 neonates recruited, 97(58.1%) were males, 70(41.9%) were females and a male: female ratio of 1.4:1. Outborns were 100 (60%), inborns were 67(40%). Mean age was 4.3 ± 1.5 days and the mean weight of 2589 ± 743.9 g. The overall prevalence of neonatal sepsis was 2.33% while the blood culture's positive rate was 9.58%. Risk factors identified in the neonates in this study were prolonged rupture of membranes (PROM), chorioamnionitis, meconium-stained liquor, foul-smelling vaginal discharge, being an outborn, having a low birth weight, inability to cry at birth and prematurity but, PROM was the only risk factor significantly associated with septicaemia (OR 5.4; 95% CI 2.2–13.5) while *Escherichia coli* was the leading bacterial isolate.

CONCLUSION: In conclusion, prolonged rupture of membrane was mostly responsible for neonatal septicaemia in this study. **WAJM 2023; 40(8): 792–798.**

Keywords: Neonates, Septicaemia, Risk factors.

RÉSUMÉ

CONTEXTE: La septicémie néonatale (SN) survient au cours des 28 premiers jours de vie et se caractérise par une infection bactérienne systémique prouvée par hémoculture. C'est l'une des principales causes de morbidité et de mortalité chez les nouveau-nés. Les déterminants de la NNS varient d'un endroit à l'autre, ce qui constitue la base de cette étude.

OBJECTIF: Déterminer la prévalence et les facteurs prédisposant à la septicémie néonatale parmi les nouveau-nés admis dans l'unité de soins intensifs néonataux (USIN) du Centre médical fédéral de Bida (CMF Bida).

MÉTHODES: Il s'agissait d'une étude observationnelle prospective d'un an, 167 nouveau-nés admis à l'unité de soins intensifs néonataux (USIN) du FMC Bida, ont été sélectionnés par la méthode d'échantillonnage à dessein pour participer à l'étude du 13 mai 2015 au 30 avril 2016. Un questionnaire structuré a été rempli par les parents consentants et des échantillons de sang ont été prélevés pour des analyses de laboratoire. Les données ont été analysées à l'aide de SPSS version 20 (2016). Les données ont été résumées à l'aide des distributions de fréquence, des moyennes, de l'écart-type, des graphiques et des tableaux, tandis que la signification statistique a été déterminée à l'aide du test du chi-carré et du test exact de Fisher à un niveau de signification de 5 %, ainsi que du rapport d'Odd (OR), le cas échéant.

RÉSULTATS: Sur les 167 nouveau-nés recrutés, 97 (58,1 %) étaient des garçons, 70 (41,9 %) étaient des filles, soit un rapport hommes/femmes de 1,4:1. Les nouveau-nés étaient au nombre de 100 (60 %) et les nouveau-nés au nombre de 67 (40 %). L'âge moyen était de $4,3 \pm 1,5$ jours et le poids moyen de $2589 \pm 743,9$ g. La prévalence globale de la septicémie néonatale était de 2,33 %, tandis que le taux d'hémoculture positive était de 9,58 %. Les facteurs de risque identifiés chez les nouveau-nés de cette étude étaient la rupture prolongée des membranes (RPM), la chorioamnionite, la liqueur méconiale, les pertes vaginales nauséabondes, la naissance d'un enfant, le faible poids de naissance, l'incapacité à pleurer à la naissance et la prématurité, mais la RPM était le seul facteur de risque significativement associé à la septicémie (OR 5,4 ; 95% CI 2,2-13,5) tandis qu'*Escherichia coli* était l'isolat bactérien principal.

CONCLUSION: En conclusion, la rupture prolongée des membranes était principalement responsable de la septicémie néonatale dans cette étude. **WAJM 2023; 40(8): 792–798.**

Mots-clés: Nouveau-nés, Septicémie, Facteurs de risque.

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Abbreviations: ANC, Antenatal Care; EGA, Estimated Gestational Age; EOS, Early Onset Sepsis; FMC, Federal Medical Centre; LOS, Late Onset Sepsis; NICU, Neonatal Intensive Care Unit; NNS, Neonatal Septicaemia; PROM, Premature/Prolonged Rupture of Membrane; SD, Standard Deviation; SPSS, Statistical Package for Social Sciences; TV, Television; WHO, World Health Organization.