

VOLUME 41, NUMBER 7  
July 2024

ISSN 0189 - 160X

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# WAJM

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**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



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## TABLE OF CONTENTS

GENERAL INFORMATION	IC
INFORMATION FOR AUTHORS	1F
EDITORIAL NOTE:	
Stress-Related Quality of Life Among Healthcare Professionals, and the Urgent Need for Systemic Reforms .....	737
Towards Bridging Gaps in Healthcare Delivery <i>G. E. Erhabor</i>	
ORIGINAL ARTICLES	
The Value of Targeted Screening for Glaucoma: The University of Ilorin Teaching Hospital Experience .....	741
T. S. Obajolowo, I. A. Yusuf, S. G. Adeoti, J. F. A. Owoeye, M. A. Taiwo, F. O. Olatunji	
Research Participation and Feedback: Perception of Adolescents and Young Adults Living with HIV in Lagos, Nigeria .....	748
A. O. Salako, T. Musari-Martins, F. T. Akinsolu, O. O. Odubela, P. N. Ezemelue, B. Opaneye, S. Bankole, N. O. Rahman, I. E Idigbe, A. R. Abubakar, N. A. David, T. A. Gbaja-biamila	
Assessment, Management and Quality of Care of Patients Presenting with Non-Traumatic Acute Chest Pain .....	755
in the Emergency Room who had Acute Coronary Syndrome	
O. O. Oladapo, K. A. Ojifinni, O. Adebayo, O. A. Orimolade, O. Oluwasanjo, V. A. Obasuyi, A. T. Adeyanju	
A 7-Month Review of Clinical and Demographic Predictors of Childhood Mortality in a Tertiary Children-Hospital in Freetown, Sierra Leone .....	761
I. E. Akhigbe, P. E. Ikhurionan, N. V. T. Bell, R. D. C. Luke, A. B. Bah, A. Geissler-Jalloh, A. M. Mustapha, G. E. Ofovwe	
Molecular Subtypes of Breast Cancer in a Tertiary Centre in Edo State: South-South Nigeria .....	767
E. E. Ugiagbe, D. O. Owolabi	
Gaps in Management of Dyslipidaemia among Physicians in Nigeria: Report of a Web-Based Survey .....	775
Y. A. Ayoola, O. A. Adejumo, S. O. Oiwoh, J. O. Akande, O. Adebayo, T. I. A. Oseni, F. O. Inofomoh, A. A. Mamza, I. R. Edeki, A. C. Enikuomehin, O. O. Oni, O. A. Junaid, T. T. Shogade, I. A. Yusuf, M. M. Yakubu, A. O. Yusuf, D. S. Oyedepo, S. O. Adebayo, A. A. Akintunde for the Nigeria Clinical Lipid Research (NiCLiR) Network	
Opinions of Dental Technologists in Nigeria on Quality of Work Authorization for Removable Dental Prostheses .....	783
O. A. Adenuga-Taiwo, T. O. Omosebi, M. O. Bowale, A. O. Awotile, I. Dike	
Assessing the Quality of Life of Healthcare Professionals in High-Stress Units at a Tertiary Health Centre .....	789
in South-eastern Nigeria	
S. I. Ezemenah, C. C. Ibe, O. S. Okonkwo, C. S. Anusi, S. C. Ezemenah, P. Eseigbe, A. N. Alabi	
Perception, Practice and Cost Burden of Medical Tourism Among Physicians in Public Tertiary Health Facilities in Oyo State, South-West, Nigeria .....	796
R. Y. Olatunde, O. T. Esan	
Awareness of Primary Care Providers on Genital Schistosomiasis Infection in Northern Nigeria .....	805
Y. A. Sada, A. L. Olawumi, M. Tenego, M. S. Sidi, M. Z. Dan-Inna, Y. F. B. Camanor, T. I. A. Oseni	
Use of Prophylactic Parenteral Tranexamic Acid for Reduction of Blood Loss During and After Caesarean Section: A Double-Blind Randomized Controlled Study .....	810
A. V. Ndubuisi, P. U. Agu, E. O. Ugwu, S. N. Obi, G. U. Eleje, M. I. Eze, K. E. Ekwuazi, A. O. Ugwu, P. C. Ekwueme, C. S. Anigbo	
Analysis of the Factors Affecting the Male-Female Sex Ratio of Babies Born through Assisted Reproductive Technology .....	818
A. O. Ugwu, C. C. Makwe, V. Kay	
CASE REPORT	
Biventricular Hypertrophic Cardiomyopathy in a 26-year-old Nigerian Woman with Noonan Syndrome .....	826
O. S. Ogah, A. Aje, V. A. Obasuyi, O. A. Orimolade, I. T. Nebo, F. A. Ajao, D. A. Olawuyi, V. K. Olalekan, C. M. Ogah, F. E. Obiekwe, M. N. Odenigbo, O. M. Adebayo, A. M. Adeoye, O. O. Oladapo, A. Adebiyi	
Intramural Pregnancy: An Intriguing Diagnosis in a Resource Constraint Practice .....	831
O. O. Lawal, G. O. Obajimi, C. M. Okor, J. A. Ogunsonla	
Cerebral Echinococcosis Mimicking a Brain Tumour in Rural Southwest Nigeria .....	836
M. O. Buhari, O. Omoseebi, O. O. Oyeleye, O. Folarammi, O. O. Erinomo, O. M. Adeniyi	
INDEX TO VOLUME 41, NO. 7, 2024	
Author Index .....	840
Subject Index .....	841



## ORIGINAL ARTICLE

### Use of Prophylactic Parenteral Tranexamic Acid for Reduction of Blood Loss During and After Caesarean Section: A Double-Blind Randomized Controlled Study

*Utilisation de l'Acide Tranexamique Parentéral Prophylactique pour la Réduction de la Perte de Sang Pendant et Après la Césarienne: Une Étude Randomisée Contrôlée en Double Aveugle*

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#### ABSTRACT

**BACKGROUND:** Haemorrhage is a leading cause of maternal mortality. The prophylactic use of tranexamic acid during vaginal delivery or caesarean section has the potential to reduce blood loss and postpartum anaemia.

**OBJECTIVE:** To determine the effectiveness and safety of tranexamic acid in reducing blood loss during and within twenty-four hours after a caesarean section.

**METHODS:** This was a randomised controlled study of two hundred and eighty-four (284) pregnant women booked for caesarean section at the University of Nigeria Teaching Hospital (UNTH), Ituku Ozalla, Enugu, Nigeria. The women were randomised into two groups: the intervention group ( $n = 142$ ) that received intraoperative tranexamic acid with routine post-delivery oxytocin injection and the control group ( $n = 142$ ) that received placebo with routine post-delivery oxytocin. Blood loss was assessed both intra and post-operatively using a standard technique.

**RESULTS:** The mean intraoperative blood loss was significantly lower in the intervention group compared to the control group ( $435.9 \pm 34$  vs.  $918 \pm 258.7$ ,  $P=0.036$ ). Similarly, the postoperative blood loss within twenty-four hours of surgery was significantly less in the intervention compared to the control group ( $232.71 \pm 67.4$  vs.  $717 \pm 317.6$ ,  $P=0.031$ ). The incidences of postoperative anaemia and blood transfusion intra or postoperatively were also significantly less in the intervention group compared to the control group ( $33.2\%$  vs.  $48.6\%$ ; RR =  $0.623$ ; 95% CI =  $0.46-0.84$ ;  $p = 0.002$ , and  $6.3\%$  vs  $24.6\%$ ; RR =  $0.257$ ; 95%CI =  $0.13-0.52$ ;  $P = < 0.001$ , respectively). There were no differences in the incidences of maternal and neonatal complications.

**CONCLUSION:** The use of prophylactic parenteral tranexamic acid significantly reduces blood loss during and after caesarean section. It is therefore recommended in our obstetric practice as it has the potential to reduce the incidence of postpartum anaemia.

WAJM 2024; 41 (7): 810 - 817

**KEYWORDS:** Tranexamic acid, Intrapartum blood loss, Post-partum haemorrhage, Anaemia

#### RÉSUMÉ

**CONTEXTE:** L'hémorragie est l'une des principales causes de mortalité maternelle. L'utilisation prophylactique de l'acide tranexamique lors d'un accouchement par voie basse ou d'une césarienne a le potentiel de réduire la perte de sang et l'anémie post-partum.

**OBJECTIF:** Déterminer l'efficacité et la sécurité de l'acide tranexamique dans la réduction de la perte de sang pendant et dans les vingt-quatre heures suivant une césarienne.

**MÉTHODES:** Cette étude contrôlée randomisée a inclus deux cent quatre-vingt-quatre (284) femmes enceintes prévues pour une césarienne à l'Hôpital Universitaire du Nigeria (UNTH), Ituku Ozalla, Enugu, Nigéria. Les femmes ont été randomisées en deux groupes : le groupe d'intervention ( $n = 142$ ) qui a reçu de l'acide tranexamique en périopératoire avec une injection d'oxytocine post-accouchement de routine et le groupe témoin ( $n = 142$ ) qui a reçu un placebo avec l'oxytocine de routine post-accouchement. La perte de sang a été évaluée pendant l'opération et après l'opération à l'aide d'une technique standard.

**RÉSULTATS:** La perte de sang moyenne périopératoire était significativement plus faible dans le groupe d'intervention par rapport au groupe témoin ( $435,9 \pm 34$  vs.  $918 \pm 258,7$ ,  $P=0,036$ ). De même, la perte de sang postopératoire dans les vingt-quatre heures suivant l'opération était significativement plus faible dans le groupe d'intervention par rapport au groupe témoin ( $232,71 \pm 67,4$  vs.  $717 \pm 317,6$ ,  $P=0,031$ ). Les incidences d'anémie postopératoire et de transfusion sanguine pendant ou après l'opération étaient également significativement plus faibles dans le groupe d'intervention par rapport au groupe témoin ( $33,2\%$  vs.  $48,6\%$ ; RR =  $0,623$ ; IC 95% =  $0,46-0,84$ ;  $p = 0,002$ , et  $6,3\%$  vs  $24,6\%$ ; RR =  $0,257$ ; IC 95% =  $0,13-0,52$ ;  $P = < 0,001$ , respectivement). Il n'y avait pas de différences dans les incidences de complications maternelles et néonatales.

**CONCLUSION:** L'utilisation prophylactique d'acide tranexamique parentéral réduit significativement la perte de sang pendant et après une césarienne. Il est donc recommandé dans notre pratique obstétricale, car il a le potentiel de réduire l'incidence de l'anémie post-partum.

WAJM 2024; 41 (7): 810 - 817

**MOTS-CLÉS:** Acide tranexamique, Perte de sang intrapartum, Hémorragie post-partum, Anémie

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