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TABLE OF CONTENTS

GENERAL INFORMATION IC
INFORMATION FOR AUTHORS 1F
EDITORIAL NOTE:
Addressing the Persistent Burden of Under-Five Mortality, and the Growing Importance of Healthcare 615
Marketing - G. E. Erhabor
ORIGINAL ARTICLES
Concordance Between Clinical and Histopathological Diagnosis of Skin Diseases in South-South Nigeria: A Two-Center Study 617
O. E. Ogunbor, C. R. Madubuko, C. A. Okoye, D. E. Imasogie
Early Versus Delayed Oral Feeding in Emergency Gastrointestinal Surgeries 625
O. O. Akanbi, A. S. Oguntola, M. L. Adeoti, J. G. Olaogun, O. L. Idris, S. O. Fadiora
Effect of Dietary Phosphate Restriction in Pre-Dialysis Chronic Kidney Disease Patients with Hyperphosphataemia in Southern Nigeria 630
I. R. Edeki, E. I. Unuigbo, E. I. Okaka
Physicians' Perception on the Relevance of Healthcare Marketing in a Tertiary Hospital, South-West, Nigeria 638
T. O. Adebawojo, V. A. Adekiya, O. O. Abesin, N. H. Ugwuchukwu, O. I. Adeniji, M. D. Adekanle, T. O. Esan
A Survey of What Healthcare Professionals Consider as Relevant for Decisional Autonomy in Health and Treatment in Nigeria 644
O. Sorinmade, O. Elugbadebo, T. Bello
Risk Factors Associated with Under Five Children Mortality in Northeast Nigeria; A Retrospective Analysis of National Demographic and Health Survey Data 651
Y. A. Misau, M. F. Bashir, M. M. Dabo, A. S. Adamu, L. M. Dattijo, A. Z. Musa, S. M. Ahmad, J. Yaya, M. Meremikwu, B. M. Usman, N. K. Abdulhamid
Relationship Between Blood Pressure Control and Self-Care Practices Among Hypertensive Patients Attending Family Medicine Clinic of Lagos State University Teaching Hospital, Lagos, Nigeria 659
S. O. Odunaye-Badmus, O. O. Sodipo, S. O. Malomo, O. E. Oluwatuyi, R. N. Odiana
Prevalence of Intestinal Parasitic Infections Among Pregnant Women: A Multi-Centre Survey 668
S. E. Ocheja, O. Adesina, O. Makanjuola
Heart Rate Variability in Healthy Young Adult Nigerians 675
D. B. Adamu, B. S. Chori, O. Onaadebo, J. O. Ogedengbe, A. N. Odili
Assessment of Rifampicin Indeterminate Results among Adult Patients attending a Tertiary Tuberculosis Treatment Center in Port Harcourt Rivers State using Shewhart control Charts: Implications for patients and Tuberculosis Control Programs 682
T. J. Abaate, A. A. Alali
Prevalence of High Blood Pressure and Associated Factors among a Population of Apparently Healthy in-School Adolescents in Delta State, Nigeria: A Cross-Sectional Survey 691
E. M. Umuerrri, Patrick Oyibo, I. A. Oyibo, O. Eyawo
A Comparative Study of Intelligence Quotients of Almajirai Attending Quranic Schools and Pupils of Selected Primary Schools in Zaria, Northwest Nigeria 699
A. Abubakar-Abdullateef, A. Mohammed, K. Kusi-Mensah, H. D. Mohammed, A. S. Kakangi
Total Thyroidectomy versus Subtotal Thyroidectomy as a Suitable Surgery for Benign Thyroid Disorders 708
W. M. El-Sayed, S. Elhariri, M. S. F. Mekhaeel, I. Burud
Trends in Dermatological Diagnoses During Covid-19 Pandemic in Nigeria: A Retrospective Study 714
C. C. Anaje, O. I. Ezejiofor, N. A. Enechukwu, C. I. Okpala, C. L. Onyekonwu, J. C. Nkesi
Knowledge of Helping Babies Breathe Programme and the Determinants among Trainees in Edo State 721
I. G. Enato, O. K. Olaniyi, O. J. Uduebor, S. Oriaifo, E. Idemudia, I. A. Enadeghe, F. Okhamafe, O. Ezomo, E. M. Osazee, V. S. Effiong
CASE REPORT AND REVIEW OF LITERATURE
Ebstein's Anomaly in a Young Nigerian Lady 727
S. E. Antia, G. C. Isiguzo, C. C. Ajaero, P. O. Okpala, C. N. Ugwu
INDEX TO VOLUME 41, NO. 6, 2024
Author Index 735
Subject Index 736



Heart Rate Variability in Healthy Young Adult Nigerians

Variabilité de la Fréquence Cardiaque chez de Jeunes Adultes Nigériens en Bonne Santé

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ABSTRACT

OBJECTIVE: Heart rate variability (HRV) is a reliable, non-invasive indicator of autonomic balance. Its application in research and clinical medicine is hindered by the lack of consensus on normal values. This study sought to bridge this gap by providing normative values for short-term HRV measures in apparently healthy young adults.

METHODS: A descriptive cross-sectional study was carried out to determine short-term HRV measures using a 5-minute ECG recording among 840 healthy young adult Nigerians.

RESULTS: A total of 840 subjects between the ages of 15 – 40 years participated in the study, the majority of whom were women (56%). Mean (\pm SD) RR (ms), SDNN (ms), RMSSD (ms), LF (ms²), HF (ms²), LF (nu), HF (nu), and LF/HF were 831 (\pm 138), 48 (\pm 35), 57 (\pm 49), 949 (\pm 2598), 1802 (\pm 5135), 41 (\pm 19), 58.90 (\pm 19), and 1.42 (\pm 4.6) respectively. Male participants had significantly higher mean RR (890.8 v 782.0, $p < 0.001$), SDNN (52.4 v 43.8, $p < 0.005$), RMSSD (63.6 v 50.9, $p < 0.005$), LF (1218.5 v 731.8, $p < 0.001$) and HF (2260.5 v 1429.5, $p = 0.002$) than the female participants. No significant differences were found across age groups.

CONCLUSION: Short-term resting HRV shows gender differences and higher vagally-mediated components among healthy young adults of native African descent. Interpretation of HRV parameters should take into account the age, gender, context, spectral analysis method, and duration of recording, among other factors.

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KEYWORDS: HRV, Normal values, Gender differences, Young adults

RÉSUMÉ

OBJECTIF: La variabilité de la fréquence cardiaque (VFC) est un indicateur fiable et non invasif de l'équilibre autonome. Son application en recherche et en médecine clinique est entravée par l'absence de consensus sur les valeurs normales. Cette étude visait à combler cette lacune en fournissant des valeurs normales pour les mesures de la VRC à court terme chez de jeunes adultes apparemment en bonne santé.

MÉTHODES: Une étude transversale descriptive a été réalisée pour déterminer les mesures de VRC à court terme à l'aide d'un enregistrement ECG de 5 minutes chez 840 jeunes adultes nigériens en bonne santé.

RÉSULTATS: Au total, 840 sujets âgés de 15 à 40 ans ont participé à l'étude, la majorité d'entre eux étant des femmes (56 %). Les RR (ms), SDNN (ms), RMSSD (ms), LF (ms²), HF (ms²), LF (nu), HF (nu) et LF/HF moyens (\pm SD) étaient respectivement de 831 (\pm 138), 48 (\pm 35), 57 (\pm 49), 949 (\pm 2598), 1802 (\pm 5135), 41 (\pm 19), 58,90 (\pm 19) et 1,42 (\pm 4,6). Les participants masculins avaient un RR moyen (890,8 v 782,0, $p < 0,001$), un SDNN (52,4 v 43,8, $p < 0,005$), un RMSSD (63,6 v 50,9, $p < 0,005$), un LF (1218,5 v 731,8, $p < 0,001$) et un HF (2260,5 v 1429,5, $p = 0,002$) significativement plus élevés que les participantes féminines. Les différences entre les groupes d'âge ne sont pas significatives.

CONCLUSION: La VRC au repos à court terme montre des différences entre les sexes et des composantes à médiation vagale plus élevées chez les jeunes adultes en bonne santé d'origine africaine. L'interprétation des paramètres VRC doit tenir compte de l'âge, du sexe, du contexte, de la méthode d'analyse spectrale et de la durée de l'enregistrement, entre autres facteurs.

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MOTS CLÉS: VRC, Valeurs normales, Différences entre les sexes, Jeunes adultes

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