

**Determinants and prognostic role of BNP in central Africans with congestive heart failure**

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**B**-type natriuretic peptide (BNP) is one of the most reliable biomarkers enabling a rapid bedside diagnosis and prognosis of congestive heart failure (CHF) in developed countries. Data related to BNP in sub-Saharan Africa is still lacking due to cost constraints. The aim of this study was to determine potential relationships between epidemiological features, symptoms, cardiometabolic risk factors, antioxidant biomarkers, white cell count, case fatality and BNP measurements. In univariate analysis, males, urban residences, excessive alcohol intake, coronary heart disease, dry cough, NYHA class 3-4 and mortality were defined by significant and higher BNP levels. In bivariate analysis, neutrophils ( $r=0.286$ ;  $P=0.047$ ), total bilirubin ( $r=0.480$ ;  $P<0.0001$ ), direct bilirubin ( $r=0.465$ ;  $P<0.001$ ), uric acid ( $r=0.354$ ;  $P=0.003$ ), systolic blood pressure ( $r=-0.226$ ;  $P=0.029$ ) BUN ( $r=0.320$ ;  $P=0.005$ ) and sodium ( $r=-0.580$ ;  $P=0.028$ ) showed significant correlations with BNP levels, respectively. In multiple linear regression analysis and after adjusting for confounding factors, the independent determinants explaining 99.1% of variations (adjusted R<sup>2</sup>) of BNP levels were BUN, neutrophils and uric acid. The optimal cut-off point of  $BNP \geq 800$  pg/mL obtained by ROC curve ( $AUC=0.819$  95% CI 0.710-0.937,  $SE=0.061$ ;  $P=0.003$ , sensitivity= 97.5% and specificity=75.8%, conferred a relative Risk of case fatality =16.9 95% CI 2.2-31.3;  $P<0.001$ ). Thus in countries with limited resources, the equation  $Y(BNP)=-4247 + 0.630 * BUN + 0.552 * \text{neutrophils} + 0.287 * \text{uric acid}$  and  $BNP \geq 800$  pg/mL should be validated in large studies for the CHF management.

**Biography**

Benjamin B. Benjamin has received his MD, PhD in pathophysiology and MMed in Internal Medicine from the Bukarest Medical Institute (Romania), MSc in Cardiology and PhD in Cardiology at the Free University of Brussels (Belgium). He is a former Fulbright Scholar and visiting Professor in Clinical Pharmacology/Hypertension at the Institute of Lipid research, Baylor College of medicine, Houston (USA). He served for 30 years as chief of cardiology, Executive Dean of Faculty of Medicine and Deputy Vice-Chancellor at the University of Kinshasa, Democratic Republic of Congo. He is a member of 30 scientific societies, including: American Heart Association, American Diabetes Association, and American College of Cardiology, European Society of Cardiology and Pan-African society of Cardiology. He obtained a certificate in cardiovascular Epidemiology (Netherlands), Ethics (NIH), Bioethics (Oklahoma University) and Molecular genetics (Belgium, Italy). His original research was focused on elucidating the pathophysiological mechanisms of toxic myocarditis and immune-allergic cardiomyopathies. From 1980s until present, most of his research works are related to inflammatory states, oxidative stress, molecular biology, genetics, biomarkers and environmental impacts in Atherosclerosis, HIV/AIDS-related cardiac lesions, deafness (discovery of genes) and co-expression of genes in Pancreas. In addition to his role as clinician, lecturer, academic leader mentor, WHO expert and UN/Climate change Expert, he has been a very productive scientist: Supervisor of more than 10 PhD theses, 25 MSc theses, and 100 mini-dissertations, and over 300 papers published under his supervision. He is currently Research Champion professor at the Faculty of Health sciences, Walter Sisulu University, Mthatha, South Africa.