



Association between the *MTHFR* C677T gene polymorphism and essential hypertension in South West Cameroon

S.M. Ghogomu¹, N.E. Ngolle¹, R.N. Mouliom² and B.F. Asa¹

¹Molecular and Cell Biology Laboratory,
Department of Biochemistry and Molecular Biology, Faculty of Science,
University of Buea, Cameroon

²Diabetes and Hypertension Clinic, Regional Hospital, Buea, Cameroon

Corresponding author: S.M. Ghogomu
E-mail: stephen.ghogomu@ubuea.cm

Genet. Mol. Res. 15 (1): gmr.15017462

Received August 17, 2015

Accepted November 13, 2015

Published March 28, 2016

DOI <http://dx.doi.org/10.4238/gmr.15017462>

ABSTRACT. The association of the methylenetetrahydrofolate reductase (*MTHFR*) C677T gene polymorphism and essential hypertension has been reported but with controversial results in diverse populations in Asia and Europe, thereby suggesting a dependency on ethnicity. The aim of this study was to investigate the association between the *MTHFR* C677T polymorphism and essential hypertension in a Cameroonian population (Bantu ethnic group) of the South West Region. Analysis of anthropometric and biochemical data in hypertensive and normotensive subjects revealed that age, systolic blood pressure, diastolic blood pressure, low-density lipoprotein cholesterol, serum total cholesterol, and triglycerides are independent risk factors for essential hypertension. Substitution of thymine for cytosine at position 667 of the *MTHFR* gene was determined by polymerase chain reaction-restriction fragment length polymorphism. Genotype frequencies were found to be 7.3% CC, 58.5% CT, and 34.1% TT for hypertensive subjects compared to 90.0% CC, 10.0% CT, and 0.0% TT for normotensives. Allele frequencies were obtained as 36.6%

C and 63.4% T for hypertensive subjects and 95.0% C and 5.0% T for normotensive subjects. These results reveal that the T allele predisposes individuals to hypertension. Therefore, there is an association between variants of the *MTHFR* gene and hypertension in Cameroonian patients from the South West region.

Key words: Hypertension; Risk factors; MTHFR; Genetic polymorphism