

DECLARATION

I Masauso Moses Phiri, declare that this dissertation represents my own work. All the sources I have quoted have been indicated and acknowledged by means of complete reference. This dissertation has not been previously been submitted for a diploma, or degree or other qualifications at this or another university. It has been prepared in accordance with the guidelines for Master of Science (MSc) degree in Pathology (Chemical Pathology) dissertations of the University of Zambia.

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This dissertation has been submitted for examination with our approval as University Supervisors.

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Department of Pathology and Microbiology

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CERTIFICATION OF APPROVAL

I certify that this study of the 'Association of Haptoglobin Phenotypes and Hypertension in Patients Attending Outpatient Medical Clinic at the University Teaching Hospital (UTH), Lusaka, Zambia' is entirely the result of my own independent investigation. Various sources to which I am indebted are clearly indicated in the context and in the references.

Signature.....Date.....

DEDICATION

This work is dedicated to Dr. F. Goma and Dr. T. Kaile who have had an influence in shaping me and encouraging me to walk the scientific path of life with courage, determination and vision.

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The following deserve mentioning without which this research would not have been done successfully. Gratitude goes to my supervisors Dr. F. Goma and Dr. T. Kaile who consistently checked the work and guided the study. I would love to acknowledge the University of Zambia, School of Medicine for providing an environment that was conducive to do the study. It's worth mentioning SACORE for the Small Research Grant that financially sponsored the project, UTH for enabling me to reach the target group and also to use the Laboratory to analyze the samples. Dr. Ellis Suria from North-West University for statistical analysis help and Mr. T. Kantenga for the help in the laboratory analysis of the data deserve special mention. My family and friends were there to encourage and support me and for that I thank them. My colleagues too deserve much gratitude for their various inputs in the study.

ABSTRACT

Background: The pathogenesis of human hypertension is complex and multifactorial. Haptoglobin genes have been cited as risk factors in the development of hypertension. Haptoglobin is an α_2 -glycoprotein acute phase reactant that binds to free haemoglobin and forms a stoichiometrically stable complex. The impact of ethnic and racial differences on hypertension underscores the need for the identification of the genetic factors that contribute to differences in susceptibility to and the pathology of the disease. Recent studies in humans have shown that there is an association between haptoglobin (Hp) genes and hypertension, however this association varies between populations. In Zambian and most of African populations, no associations have been reported to date.

Objectives: To investigate the association between haptoglobin serum levels and haptoglobin phenotypes, and hypertension in hypertensive and normotensives clients at the University Teaching Hospital (UTH) in Lusaka, Zambia.

Methodology: A descriptive non-interventional cross-sectional study was carried out at the University Teaching Hospital, Medical Clinic. 53 consecutive hypertensive subjects that attend clinic 5 at UTH were enrolled with written consent from each subject and 55 non-hypertensive subjects were recruited from within the hospital community for comparison reasons in the study. The blood pressure, weight, height were taken and venous blood was drawn for haptoglobin quantification and phenotyping using the automated clinical chemistry analyser, which is the Horiba ABX Pentra 400. The data was entered using SPSS Statistics version 17.0 and exported to Statview for analysis.

Results. The t-test showed that there was no significant difference between the two mean levels of serum haptoglobin, $p = 0.282$. The Hp 2-2 phenotype in the hypertensives and normotensives were 30.0% and 28.0% respectively. The study showed no significance in the association of haptoglobin phenotypes and hypertension.

Conclusion: There may be no haptoglobin phenotype that is a risk or protective factor for hypertension in individuals attending the medical clinic at the UTH, Lusaka.

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LIST OF ABBREVIATIONS

Hb	Haemoglobin
Hp	Haptoglobin
Hp1	Haptoglobin phenotype 1
Hp2	Haptoglobin phenotype 2
HTN	Hypertension

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