

## **ABSTRACT**

### **Background**

Intraventricular haemorrhage (IVH) is a condition associated with prematurity and is related to bleeding in the capillary network of the germinal matrix of the developing brain. IVH puts these preterm neonates at risk for long term disability such as cerebral palsy, hydrocephalus, epilepsy, language, hearing and cognitive abnormalities.

### **Objectives**

This cross sectional study was undertaken with the aims of determining the prevalence and most frequent grade of IVH as well as associated risk factors in preterm neonates with birth weight 1.5kg or less admitted to the neonatal intensive care unit at the UTH in Lusaka, Zambia.

### **Methods**

298 preterm neonates meeting the study's inclusion criteria had cranial ultrasound done in the first three days of life and on the seventh postnatal day. Data on the risk factors was obtained from the neonatal referral form, maternal records and direct interview with the neonate's mother. Data was then entered on to the study questionnaire. Data was analysed using Epi info version 3.5.1. Multivariate logistic regression analysis was used for the association between the risk factors or independent variables and the occurrence and grade of IVH. Associated risk factors studied included postnatal age, gestational age, birth weight, respiratory distress syndrome (due to surfactant deficiency), clinical chorioamnionitis, sex, place of birth, mode of delivery and prolonged rupture of membranes (PROM).

## **Results**

In this study, the prevalence of intraventricular haemorrhage in preterm infants with birth weight 1.5kg and less was 34.2% in the first seven days of postnatal life. Grade 1 (mild) IVH was the most frequent (54.9%) followed by severe IVH (grade 3 and 4) at 27.5%. The case fatality rate was 85.7% for those with grade 4 in the first three days of life. Grade 2 was the least prevalent at 17.7%.

Risk factors significantly associated with IVH were birth weight [p=0.04, OR= 0.25(0.06-0.98) 95% C.I.] and gestational age [p=0.02, OR= 0.82 (0.69-0.97) 95% C.I.]

## **DEDICATION**

To my lovely wife Ethel whose patience and understanding while I took time to write this dissertation provided me with strength to put it together.

To my son Makasa and daughter Chanda, driving forces behind things I do. This is for you.

To my parents, whose support, encouragement and patience for my education have been invaluable through and through.

## **ACKNOWLEDGEMENTS**

I wish to thank my Supervisors Professor Chomba and Dr Sinyangwe whose guidance and knowledge as well as financial and material support made this undertaking possible.

I also wish to thank the two sisters-in-charge for ward D11, Nsamba I, and Karen M. for being very accommodating and supportive while the study was being conducted on the ward. I thank my research assistant, Nurse Ngulube E. for her commitment to the assigned duties during the study.

Thanks to Dr B. Andrews for the help with the data analysis.

Finally to all the mothers who willingly agreed to have their babies participate in the study, thank you very much.

# CONTENTS

	<b>Page</b>
<b>Abbreviations and acronyms.....</b>	<b>x</b>
<b>Chapter one</b>	
1.1 Introduction.....	1-2
1.2 Statement of the problem.....	2
1.3 Study justification.....	2
1.4 Literature review.....	3-5
1.4.1 Pathophysiology.....	3
1.4.2 Clinical aspects.....	4-5
<b>Chapter two</b>	
2.1 Main objective.....	6
2.2 Specific objectives.....	6
<b>Chapter three</b>	
3.1 Study design.....	7
3.2 Study site.....	7
3.3 Sample profile.....	7
3.3.1 Subject inclusion criteria.....	7
3.3.2 Subject exclusion criteria.....	8
3.4 Sample size.....	8
3.5 Data collection.....	8-10
3.6 Data analysis.....	10
3.7 Ethical consideration.....	11

## **Chapter four**

4.1 Results.....	12-15
------------------	-------

## **Chapter five**

5.1 Discussion.....	16-18
---------------------	-------

## **Chapter six**

6.1 Conclusion.....	19
6.2 Limitations.....	19
6.3 Recommendations.....	20

<b>References.....</b>	<b>21-26</b>
------------------------	--------------

## **Appendices**

Appendix A.....	27
Appendix B.....	28
Appendix C.....	29-35
Appendix D.....	36-38

## ABBREVIATIONS AND ACRONYMS

CI.....	Confidence interval
CL .....	Confidence level
CNS.....	Central nervous system
DOB.....	Date of birth
EGA.....	Estimated gestational age
ELBW.....	Extremely low birth weight
IUGR.....	Intrauterine growth restriction
IVH.....	Intraventricular haemorrhage
LNMP.....	Last normal menstrual period
NICU.....	Neonatal intensive care unit
OR.....	Odds Ratio
PVL.....	Periventricular leukomalacia
RDS.....	Respiratory distress syndrome
SD.....	Standard deviation
TOB.....	Time of Birth
USA.....	United States of America
UTH.....	University teaching hospital
VLBW.....	Very low birth weight
WHO.....	World health organization