

# Benefit of Magnesium Sulphate in Severe Perinatal Asphyxia and its Effect on Reduction of Neurodeficit on Long Term Outcome



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## Biography

Simon Pius is working as a consultant in Division of Neonatology, Department of Paediatrics, University of Maiduguri Teaching Hospital P.M.B. 1414, Maiduguri, Nigeria from 2008. He has a working experience of about 12 years. His field of interest is Neonatology.



## Abstract

### Introduction

Perinatal asphyxia is one of the leading causes of perinatal mortality (perinatal asphyxia death) and a recognized cause of neuromotor disability. It appears that a cascade of biochemical events is set in motion by the asphyxia insults which eventually causes irreversible neuronal apoptosis, these processes of cellular destruction may take days or even weeks before completion. The critical role of glutamate in the mediation of hypoxic ischaemic neuronal death is established by a large body of experimental information. Two mechanisms of glutamate-induced neuronal death have been identified, these include the rapid cell death that occurs in minutes and is initiated by glutamate receptor activation. Sodium entry through all three ionotropic receptors, passive influx of Chloride down the three electrochemical gradient with water following, and ultimately cell swelling and lysis. The second, so-called delayed cell death, occurs over many hours, is initiated principally by activation of the N-Methyl D-Aspartate (NMDA) receptor with influx of Calcium; activation of several enzymes including phospholipases, proteases, nucleases, and others leading to eventual cell death. (1,3) Magnesium (Mg) has been found to block the NMDA ion channel under resting conditions, occupying a binding site within the ion channel. This block is voltage dependent and is overcome during axonal depolarization that occurs with hypoxic -ischaemic. If the extracellular magnesium is raised, this blockage can be restored.

### Problem Statement/Justification Of Study

Severe perinatal asphyxia contributes significantly to neonatal morbidity and mortality. Encephalopathy occurs in 50% to 60% of patients with severe perinatal asphyxia. Patients with moderate HIE 10% to 20% die and 30% to 40% develop neurodeficits, whereas 50% of patients with severe HIE die and almost all survivors develop neurodeficits. Magnesium sulphate administration to severely asphyxiated neonates prevent the complication associated with hypoxic-ischaemic encephalopathy, so we wish to carry this study so as to encourage its wide application in affected newborns.

### Publication

Preterm Babies: Management and Challenges Associated with Survival in a Resource-Limited Setting  
Bébés Prématurés : Gestion et Défis Associés à la Survie Dans un Contexte De Ressources Limitées, West African journal of medicine 37(4):402-406

Prevalence and clinical manifestation of lymphomas in North Eastern Nigeria, 10.4103/0019-509X.1784

Prevalence and associated morbidities of preterm neonatal admissions at the University of Maiduguri Teaching Hospital, North-Eastern Nigeria, June 2020, Nigerian journal of paediatrics 47(3):264-269, DOI: 10.4314/njp.v47i3.12

Burden of Severe Malaria in Children at General Sani Abatcha Specialist Hospital, Damaturu, North-Eastern Nigeria, December 2019, DOI: 10.31173/bomj.bomj\_168\_16

Magnesium Sulphate Treated Severely Asphyxiated Neonates, Their Characteristic and Outcome, February 2019, DOI: 10.9734/ajpr/2018/v1i230092.

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