OXIDANT AND ANTIOXIDANT LEVELS IN PRETERM NEWBORN WITH IDIOPATHIC HYPERBILIRUBINAEMIA

Thesis

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By

Hossam Ahmed Abd Elatef Serag Elden
M.B.,B.Ch, Cairo University (٢٠٠١)

Under Supervision of

PROF. DR. IBRAHEM SAAD ABU SAIF
Assistant Professor of Pediatrics
Faculty of Medicine , Ain Shams University

PROF. DR. SOHEIR MOHAMMED KORRAA
Assistant Professor of Environmental Medical Research, National Center of Radiation Researches and Technology

DR. MAHA HASSAN MOHAMMED
Lecturer of Pediatrics
Faculty of Medicine , Ain Shams University

Faculty of Medicine
Ain Shams University

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List of Abbreviations

AA	Ascorbic acid
ABO	Blood group ABO
ATP	Adenosine tri phosphate
BAER	Brain-sterm audiometic evoked responses
BMI	Body mass index
BPD	Bronchopulmonary dysplasia
C.S.	Caesarean section
Ca	Calcium ion
CCL_3	Trichloromethyl radical
CH_2	Methylene group
CLD	Chronic lung disease
CPAP	Continuous positive airway pressure
CU-SOD	Copper superoxide dismutase
Cu-Zn SOD	Copper-Zinc super oxide dismutase
DNA	Deoxyribnucleic acid
DWMI	Diffuse white matter injury
FR	Free radical
FT-AGA	Fullterm appropriate for gestational age
FT-SGA	Fullterm small for gestational age
G٦PD	Glucose ٦ phosphate dehydrogenase
GMH-IVH	Germinal matrix intraventricular haemorrhage
GSH-PX	Glutathione peroxidases
GSSG	Oxidized glutathione
H_2O_2	Hydrogen peroxide
Hb	Hemoglobin

HCT.....Hematocrit
HMD.....Hyaline membrane disease
HO.....Heme oxygenase
IUGR.....Intrauterine growth retardation
IVH.....Intraventricular haemorrhage
LBW.....Low birth weight
LO.....Lipid alkoxyl radical
LOO.....Lipid hydroperoxide radical
LPT.....Large preterm
MDA.....Malondialdehyde
MN-SOD.....Maganese-superoxide dismutase
NBS.....New ballard score
NEC.....Necrotizing enterocolitis
NICU.....Neonatal intensive care unit
NO.....Nitric oxide
NVD.....Normal vaginal delivery
O۲.....Molecular oxygen
O۲-.....Superoxide radical
O۳.....Ozone
PAF.....Platelets activating factor
PDA.....Patent ductus arteriosus
PGs.....Prostaglandins
PIP.....Peak inspiratory pressure
PPROM.....Preterm premature rupture of membranes
PUFAs.....Poly unsaturated fatty acids
PVL.....Periventricular leukomalacia
RBCs.....Red blood cells

RDS.....Respiratory distress stndrome
RNS.....Reactive nitrogen species
ROP.....Retinopathy of prematunity
ROS.....Reactive oxygen species
SOD.....Superoxide dismutase
SPT.....Small preterm
TNF.....Tumour necrosis factor
TRAP.....Total radical trapping capacity
TSB.....Total serum bilirubin
UDPG-T.....Uridine diphosphoglucuronyl transferase
VLBW.....Very low birth weight
WBCs.....White blood cells

INTRODUCTION AND AIM OF WORK

Hyperbilirubinemia is the most common clinical condition requiring evaluation and treatment in the newborn. It is clinically observed in ٦٠% of term infants and ٨٠% of premature infants *(Escobar et al., ٢٠٠٥)*.

Although generally a benign transitional phenomenon, in a select few, the total serum bilirubin may rise to hazardous levels that pose a direct threat of brain damage. Acute bilirubin encephalopathy, is uncommon disorder, frequently evolving into kernic-terus a devastating, chronic and disabling condition *(Watchko, ٢٠٠٦)*.

An excess of free radicals are produced as in the case of newborn, part of it is directed against the circulating erythrocytes and may cause haemolysis *(Kondo et al., ١٩٩٧)*.

Lipid peroxidation reactions of the erythrocyte membrane can only be controlled through the intermediary of antioxidant substances. It is reported

that the oxidative damage observed in the tissue of preterm infants may due to immature antioxidant defence provided to the fetus by the mother during the final period of pregnancy *(Doyle et al., ١٩٩٧)*.