



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم



SALWA AKL

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



SALWA AKL



بعض الوثائق الأصلية تالفة



SALWA AKL



بالرسالة صفحات

لم ترد بالأصل



SALWA AKL

B 16975



قُلْ يَا عِبَادِيَ الَّذِينَ أَسْرَفُوا عَلَىٰ أَنفُسِهِمْ
لَا تَقْنَطُوا مِن رَّحْمَةِ اللَّهِ إِنَّ اللَّهَ يَغْفِرُ الْكَاتِبِينَ
لَمَّا جَاءَ إِلَهُ هُوَ الْغَفُورُ الرَّحِيمُ

صَدَقَ اللَّهُ الْعَظِيمُ

سورة الزمر - آية ٥٣



DEDICATION

To

MY PARENTS

MY WIFE

MY BROTHERS



ACKNOWLEDGMENT

Thanks for God who gives facilitate everything. I would like to express my profound gratitude, sincere thanks and deepest respect to Prof. Dr. *Ismatl Abou El-Ela*, Prof. of Pediatrics, Benha Faculty of Medicine, Zagazig University, for his kind and valuable assistance, encouragement and continuous support.

No word could express my feeling of gratitude and respect to Dr. *Abd El-Hamid Abd El-Monem*, Assistant Prof. of Pediatrics, Benha Faculty of Medicine, Zagazig University, for his keen supervision and valuable discussion and kindness. He was very generous in time and effort donation during progress and completion of this work.

My sincere gratitude and extreme thanks to Dr. *Osama El-Shaer*, Assistant Prof. of Clinical Pathology, Benha Faculty of Medicine, Zagazig University, the credit of all the laboratory work in this thesis goes directly to him. I am very thankful for his precious time, encouragement, constructive criticism and kind support.

I am very thankful and grateful for Dr. *Faten Sedeek*, Lecturer of Pediatrics, Benha Faculty of Medicine, Zagazig University, for her guidance, marvelous efforts and endless support during execution of this work. Last and not least, I would like to thank every person who helped me during this work.

The Candidate.

LIST OF TABLES

Table (I)	Causative organisms of neonatal sepsis.	6
Table (II)	Normal C.S.F. values in neonates.	14
Table (III)	Definitions of sepsis syndrome and septic shock.	26
Table (IV)	Physiological and pathological actions of nitric oxide.	45
Table (1)	Gestational age (weeks) among the studied groups.	62
Table (2)	Sex distribution among the studied groups.	62
Table (3)	Body weight (grams) among the studied groups.	63
Table (4)	Frequency distribution of clinical presentations among septicemic newborns without shock.	63
Table (5)	Systolic blood pressure among the studied groups.	64
Table (6)	Causative organisms among septicemic groups.	65
Table (7)	Comparison between septicemic groups and controls as regard plasma lactate (nmol/ml).	66
Table (8)	Comparison between septicemic groups with and without shock as regard plasma lactate (nmol/l)	66
Table (9)	Comparison between septicemic groups with and without shock as regard CRP(mg/l).	67
Table (10)	Comparison between septicemic groups with and without shock as regard haematologic score system (HSS).	67
Table (11)	Comparison between septicemic groups with and without shock as regard neutrophil (N) mm^3 .	68
Table (12)	Comparison between septicemic groups with and without shock as regard PO_2 (KPa).	68

Table (13)	Comparison between septicemic groups and controls as regard plasma nitrite & nitrate (nmol/ml).	69
Table (14)	Comparison between septicemic groups without shock and controls as regard plasma nitrite nitrate (nmol/ml).	69
Table (15)	Comparison between septicemic group with shock and controls as regard plasma nitrite and nitrate (nmol/ml).	70
Table (16)	Comparison between septicemic with and without shock as regard plasma nitrite & nitrate (nmol/ml).	70
Table (17)	Comparison between Gram-positive and gram-negative organisms as regard all laboratory investigations.	71
Table (18)	Diagnostic value of plasma NO_2 & NO_3 as a screening test in comparison to blood culture as a definitive test.	72
Table (19)	Correlation coefficient (R) between plasma nitrite and nitrate concentration and CRP concentration, HSS, plasma lactate concentration, PO_2 , total leucocyte count and absolute neutrophil count.	73
Table (20)	Comparison between the results of plasma nitrite and nitrate levels (nmol/ml) before and after treatment among septicemic newborns.	74

LIST OF FIGURES

Figure (1)	Diagram of pathogenesis of septic shock.	29
Figure (1)	Sex distribution among the studied groups.	75
Figure (2)	Body weight (grams) among the studied groups	76
Figure (3)	Clinical presentation among septicemic newborns without shock.	77
Figure (4)	The mean values of NO_3 , NO_2 among cases and controls.	78
Figure (5)	Comparison between cases with and without shock as regard NO_3 , NO_2 .	79
Figure (6)	The cut off points of nitrite and nitrate (nmol/ml) in septicemic groups without and with shock.	80
Figure (7)	Comparison between mean values of plasma NO_3 & NO_2 (nmol/ml) before and after treatment among 10 septicemic newborns.	81

CONTENTS

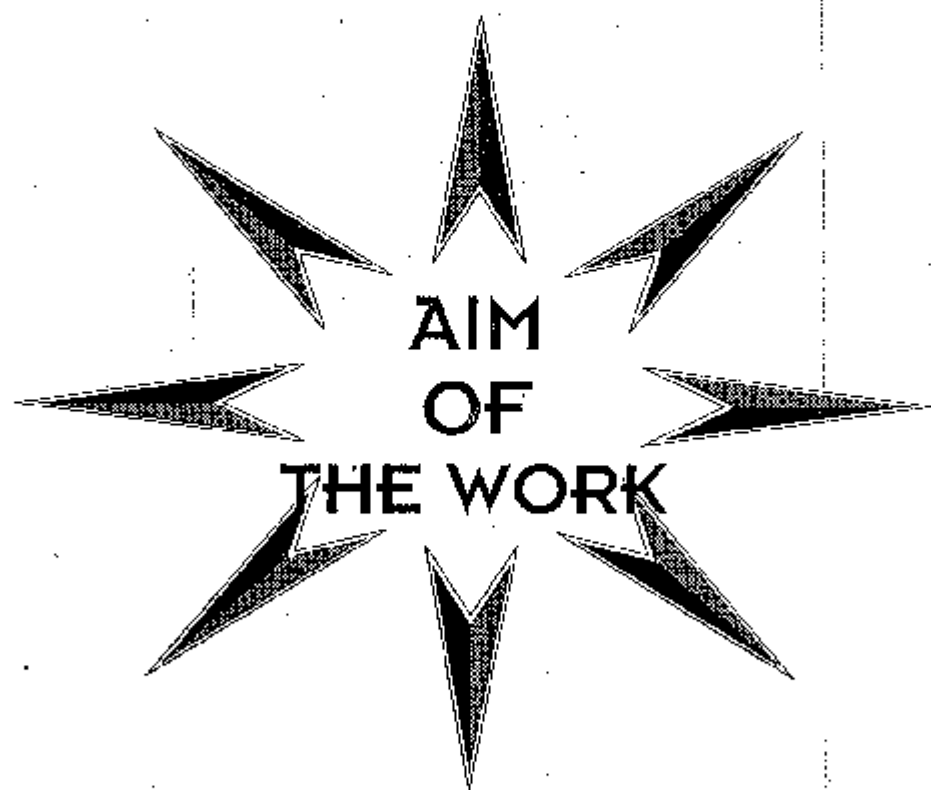
INTRODUCTION AND AIM OF THE WORK	1
REVIEW OF LITERATURE	2
CHAPTER I:	
Neonatal Septicemia	2
CHAPTER II:	
Nitric oxide	42
PATIENTS AND METHODS	53
RESULTS	82
DISCUSSION	86
SUMMARY AND CONCLUSION	94
REFERENCES	97
APPENDIX	1
ARABIC SUMMARY	1

Abbreviations

GBS	Group B-beta hemolytic streptococci
PROM	Premature rupture of membrane
CRP	C-reactive protein
F.T	Fullterm
HSS	Hematological scoring system.
IM	Immature to mature neutrophil ratio
IPMNS	Immature polymorphnuclear leukocytes
I.T	Immature to total neutrophil ratio
IVIG	Intravenous immunoglobulin.
NICU	Neonatal intensive care unit
P.T	Preterm newborns.
C.S.F	Corebro-spinal fluid
TPMNS	Total polymorphnuclear leukocytes
T.L.Cs	Total leukocytic count
RDS	Respiratory distress syndrome
N	Neutrophil
NO	Nitric Oxide
NO₂ & NO₃	Nitrate and Nitrite
NOS	Nitric Oxide Synthase
NMA	N ^g -Mono methyl-L-arginine
TNF	Tumor necrosis Factor

INTRODUCTION

&



Introduction & Aim of The Work

Neonatal sepsis is syndrome characterized by systemic signs and symptoms and bacteremia during the first month of life (*Odio, 1995*).

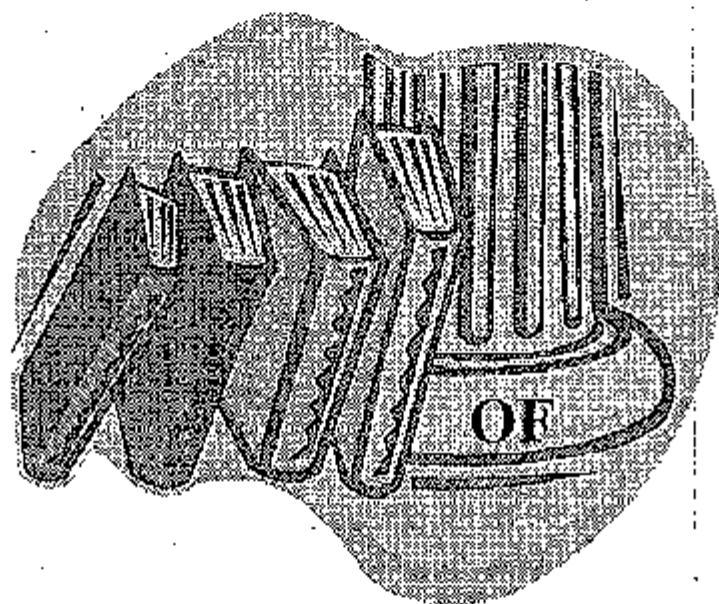
Inspite of the use of the potent antibiotics and intensive supportive care, sepsis is still a major cause of morbidity and mortality during the neonatal period (*Adriaanse, 1996*).

Serum nitrite and nitrate, the stable oxidative end products of nitric oxide (NO), have been reported in multiple animal and human studies as an indirect measure of in vivo whole body NO production (*Ochoa et al., 1991, Shi et al., 1993 and Wong et al., 1996*).

Recently nitric oxide has been implicated in the pathogenesis of sepsis, especially in the mechanism by which sepsis progresses to septic shock (*Kilobourn et al., 1992*).

The purpose of this study was to determine whether NO production is increased in newborn infants with sepsis and if so, whether the change in NO production could be used as a useful diagnostic tool or therapeutic monitor in the clinical evaluation of this syndrome.

REVIEW



LITERATURE