Effect Of Body Tilting On Physiological Functions In Low Birth Weight Neonates

Thesis
Submitted For Partial Fulfillment Of
M.S. In Pediatrics

By
Abeer Salah Eldeen Elsaqqa
M. B., B. Ch

Under the Supervision of

Prof. Dr. Sadiaa Abdel Fattah
Professor of Pediatrics
Faculty of Medicine
Ain Shams University

Dr. Mohamed Ashraf Abdel Wahed
Lecturer of Pediatrics
Faculty of Medicine
Ain Shams University

Dr. Hesham Abdel Samei Awad
Lecturer of Pediatrics
Faculty of Medicine
Ain Shams University

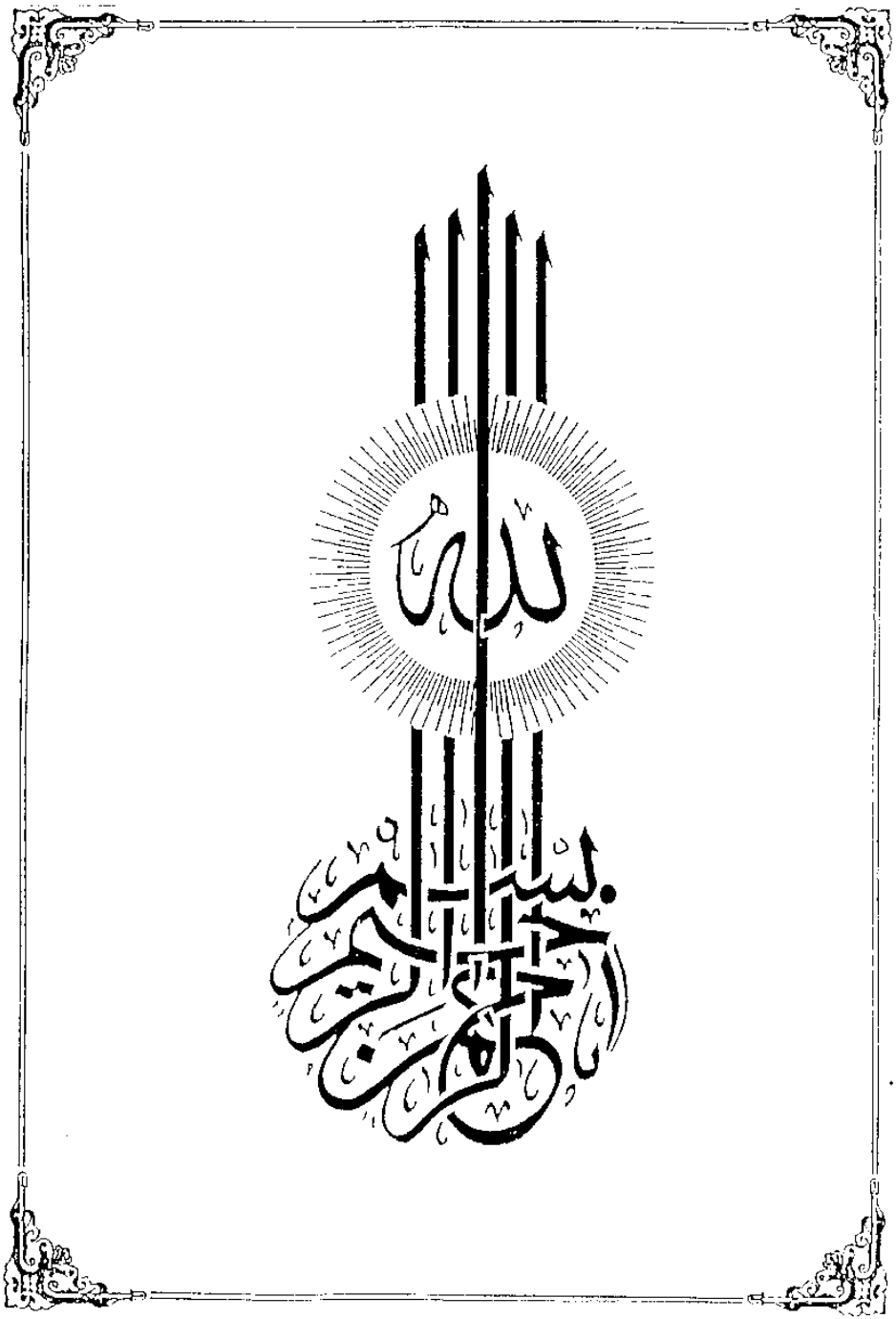
Faculty of Medicine
Ain Shams University

1992

* *

"رب أوزعنى أن أشكر نعمتك
التى أنعمت على و على والدى
وأن أعمل صالحا ترضاه
وأدخلنى برحمتك فى عبادك
الصالحين"

* *



To My Beloved Family

Acknowledgment

Praise be to God for helping me to proceed and complete this work. I'd like to express my deep gratitude to **Prof. Dr. Sadiaa Abdel Fattah,** *Professor of Pediatrics, Ain Shams University, of whom I'm really proud. In fact, I can't find adequate words to express my indebtedness to her wise guidance and motherly encouragement.*

My sincere gratitude to **Dr. Ashraf Abdel Wahed** *for his kind help and advice. Also, I'd like to thank* **Dr. Hesham Awad** *for his tremendous effort, meticulous supervision and generous help.*

Thanks to everyone in the Neonatal Intensive Care Unit (NICU) in the New Maternity Hospital of Ain Shams University for their co-operation and help.

I can't ignore the role of my lovely neonates with whom I spent a lot of time to accomplish this work.

To all those and my family ,I owe every success.

List Of Abbreviations

ALTE:	Acute life-threatening event.
APD:	Antero-posterior diameter.
B. Pertus:	Bordetella pertussis.
C.S:	Cesarean section.
CIA:	Central inspiratory activator.
C_L:	lung compliance.
CoHb:	Carboxyhemoglobin.
COP:	Cardiac output
CPAP:	Continuous positive airway pressure.
E-07:	10^{-7}.
EMN:	Expiratory motor neurons.
FRC:	Functional residual capacity.
GA:	Gestational age.
GER:	Gastroesophageal reflux.
HbF:	Fetal hemoglobin.
I : E:	Inspiration / expiration ratio.
IDM:	Infant of diabetic mother.
IMN:	Inspiratory motor neurons.
I.V.:	Intravenous.
IOS:	Inspiratory off-switch.
IUGR:	Intrauterine growth retardation.
LBW:	Low birth weight.
LES:	Lower esophageal sphincter.
MetHb:	Methemoglobinemia.
Mi:	Mitral incompetence.

MS:	Mitral stenosis.
N.V.D:	Normal vaginal delivery.
NICU:	Neonatal intensive care unit.
O_2 Sat.:	Oxygen saturation.
PCV:	Packed cell volume.
PEEP:	Positive end-expiratory pressure.
PET:	Pre-eclamptic toxemia.
PIP:	Peak inspiratory pressure.
PROM:	Pre-mature rupture of membranes.
PSO_2:	Transcutaneous oxygen.
Q:	Blood flow.
R.D:	Respiratory distress.
R_{aw}:	Airway resistance.
RDS:	Respiratory distress syndrome.
RSV:	Respiratory syncytical virus.
RV:	Residual volume.
SA node:	Sinoatrial node.
SAO_2:	Arterial Oxygen saturation.
SIDS:	Sudden infant death syndrome.
TGR:	Thoracic gas volume.
V / Q:	Ventilation / perfusion ratio.
V.D:	Vaginal delivery.
V:	Ventilation.
v_1:	Minute ventilation
VEDV:	Ventricular end diastolic volume.
Wt:	Weight.

List Of Tables

Page

List Of Figures

Pictures:

Contents

Introduction & Aim Of Work

Introduction

The optimal nursing position for low birth weight neonates has still to be decided. In previous studies, the focus was mainly on the effects of postural changes around the horizontal axis of the body.

It was shown that the prone position offered certain advantages over the supine mainly in two aspects; respiratory performance and gastric emptying ***(Yu, 1975; Thoresen et al., 1988)***.

In the prone position ventilation and lung mechanics improved as well as oxygenation without respiratory rate being significantly affected by the change in posture ***(Martin et al., 1979 and Wagaman et al., 1979)***.

Also gastric emptying was quicker in the prone position than in the supine ***(Yu, 1975).***

The effects that may occur on physiological functions in low birth weight neonates when the body is tilted from the horizontal towards the vertical plane have been little studied.

Aim Of The Work

The aim of our work is to study systematically the effect of head-up tilting at various angles on oxygenation, heart rate, respiratory rate, blood pressure and gastric emptying.

Thus reaching an optimal nursing position for low birth weight to be used in our ***Neonatal Intensive Care Units*** (NICUs).