CARE OF THE LOW BIRTH WEIGHT INFANTS

An Essay

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By

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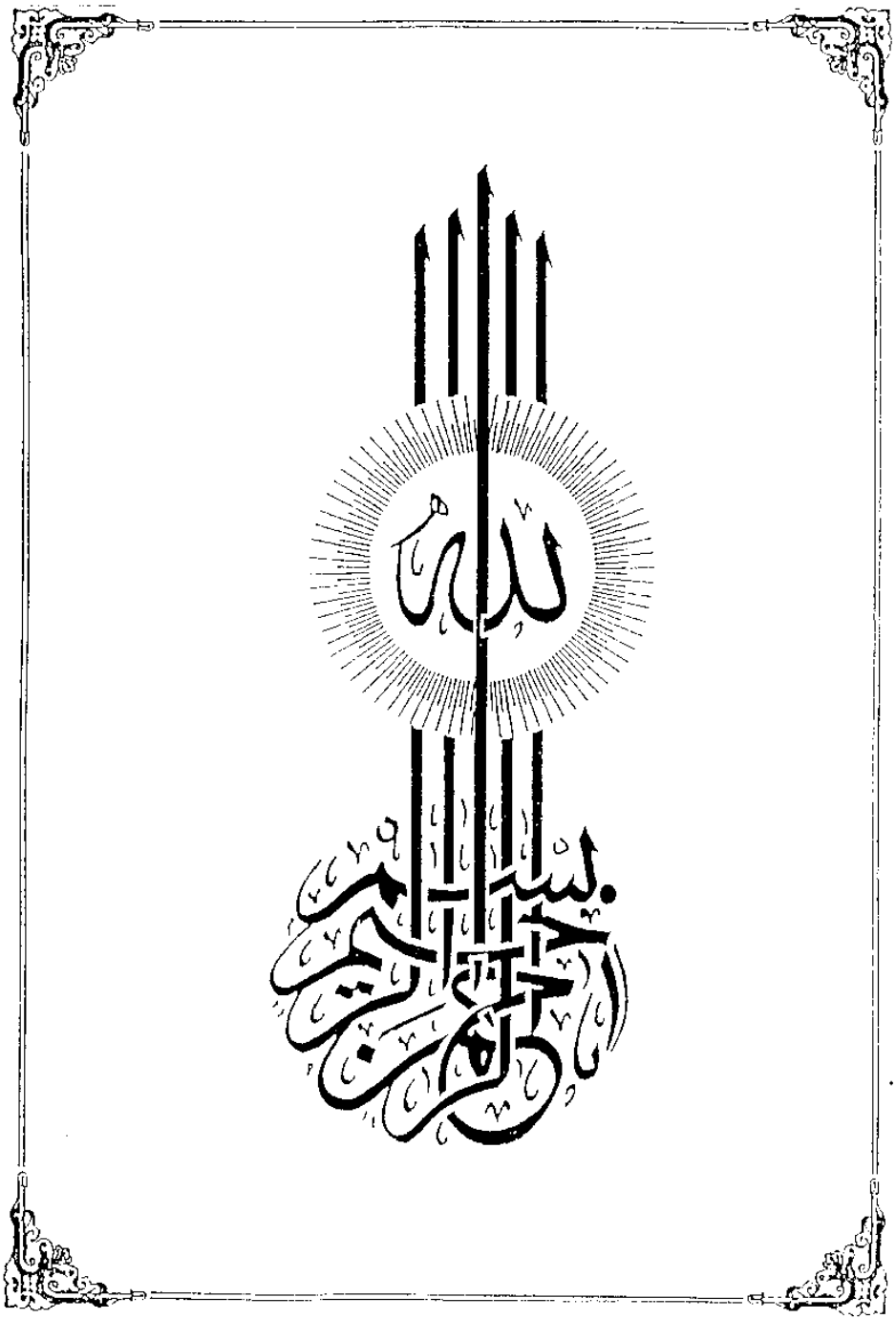

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Ihab Salah Lotfy.

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LIST OF ABBREVIATIONS

AGA:	Appropriate for gestational age
BPD:	Bronchopulmonary dysplasia
BUN:	Blood urea nitrogen
Cal:	Calorie
CPAP:	Continuous positive airway pressure
CVP:	Central venous pressure
dl:	Deciliter
d:	day
g, gm:	Gram
H_2O:	Water
HGA:	Heavy for gestational age
HMD:	Hyaline membrane disease
IMV:	Intermittent mandatory ventilation
I.U.:	International unit
I.V.:	Intravenous
IWL:	Insensible water loss
kcal:	Kilocalorie
kg:	Kilogram
LBW:	Low birth weight
LFD:	Light for date
MAP:	Mean airway pressure
mEq:	Milliequivalent
mg:	Milligram
ml:	Milliliter
mmol:	Milliosmole
Ug:	Microgram
NICU:	Neonatal intensive care unit
PDA:	Patent ductus arteriosus
PGE_1:	Prostaglandin E_1.
PIE:	Pulmonary interstitial emphysema
PPHN:	Persistent pulmonary hypertension of the newborn
RDS:	Respiratory distress syndrome
SFD:	Small for date
SGA:	Small for gestational age
TPN:	Total parenteral nutrition

UAC: Umbilical arterial catheter

UVC: Umbilical venous catheter

VLBW: Very low birth weight

V_T: Tidal volume

INTRODUCTION

INTRODUCTION

A central theme throughout the history of pediatrics has been the priority given to the approach of preventing the afflictions of children, low birth weight children do not constitute a small part of these children. These infants are at greatest risk of dying during infancy, and at significant risk for morbidity during childhood. L.B.W. survivors have an increased incidence of disability from a broad range of conditions, including neurodevelopmental handicaps, congenital anomalies, respiratory illnesses, and complications acquired during neonatal intensive care (Behrman, 1985).

Low birth weight infants also suffer from many complications during the neonatal period. These complications include birth asphyxia, meconium aspiration, aspiration pneumonia, pulmonary hemorrhages, hypoglycemia, hypocalcemia, and difficulties in thermal regulation. Also, complications of preterm labour which include: respiratory distress syndrome, recurrent apnoeic attacks, jaundice, anemia, necrotizing enterocolitis, infection, and vitamin E deficiency (Stewart et al., 1981).

A noteworthy caution is that feeding is of particular importance in the management of low birth weight infants since the intrauterine environment is characterized by continuous transplacental transport of nutrients and preterm birth produces a dramatic change which necessitates

that the infant must receive nutrients through the gastro-intestinal tract, by intravenous administration or often, by both routes (Cone, 1981).

This is why the aim of this essay is to review the subject of the care of the low birth weight infants which will include:

* Emergency care.
* Regulation of body temperature.
* Assisted Ventilation.
* Home care of the low birth weight infants.
* Nutrition.

DEFINITIONS

PREMATURITY AND INTRAUTERINE GROWTH RETARDATION

DEFINITIONS

Prematurity:

An informal working party held at the Second European Congress of Perinatal Medicine in London, 1970, proposed that if infants were to be grouped according to gestation age, calculated from menstrual dates, the following definitions should be used:

Preterm: less than 37 weeks.

Term: 37-41 weeks.

Posterm: 42 weeks or more.

It is then necessary to consider, within each of the 3 groups, whether or not the individual infant's birthweight is appropriate for the stage of gestation reached (appropriate for gestational age - AGA), whether he is smaller or lighter than he should be (small for gestational age - SGA) or whether he is larger or heavier (heavy for gestational age - HGA)(table 1) (Neligan, 1970).

To allow such a classification to be made, the appropriate birthweight for each week of gestation must be known. Many reference tables are now available. That most commonly used internationally is the Denver intrauterine weight curve (shown in fig. 1) compiled by Lubshenco et al (1963) for white infants and giving figures from 24 to 42 weeks gestation. Any infant whose birthweight is below the 10th centile is considered to be SGA, while

Table 1: Nomenclature According to Birth-Weight and Gestation Age

Main Group	Sub-Groups	Alternative Nomenclature
Preterm	SGA	Dysmature Light-for-dates (LFD) Small-for-dates (SFD)
	AGA	Premature
	HGA	
Term	SGA	Dysmature LFD SFD
	AGA	Mature
	HGA	
Posterm	SGA	Dysmature LFD SFD
	AGA	Postmature
	HGA	

(Forfar and Arneil, 1984)

those above the 90th centile are HGA (Forfar and Arneil, 1984).

The Low Birth Weight Infants:

They are the infants who weight 2500 gm or less at birth. They are considered to have had either a shortened gestational period or a less than expected rate of intrauterine growth (referred to as intrauterine growth retardation), or both (Keay and Morgan, 1982).

Keay and Morgan (1982) stated that they are not a homogenous group, and comprise several different subgroups with different causes, and it is usual to divide them into two main groups according to the cause of growth retardation:

1- Malnourished Group (Dysmature):

This includes the majority of light-for-date infants. This group undergoes nutritional inadequacy late in pregnancy. They are usually of normal length but they are under-weight for that length.

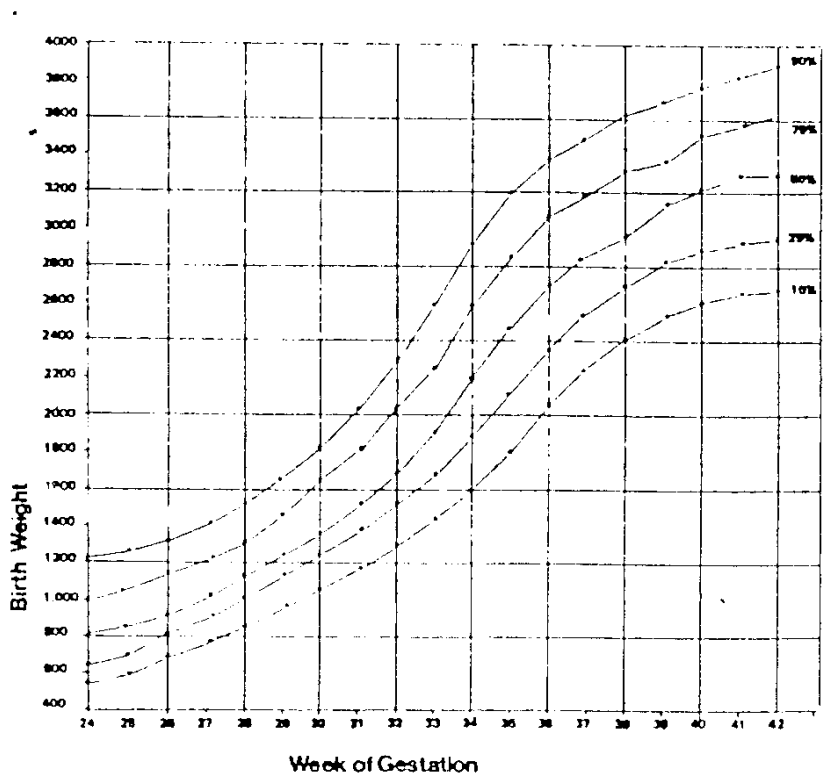
2- The Hypoplastic Group:

It includes those who have never grown normally during pregnancy. They are generally small in length but of appropriate weight for that length, and therefore, they are not malnourished in appearance. They include genetically small (dwarfed) infants with chromo-

somal abnormality such as trisomies 13, 18 and 21, and infants with chromosomal malformation. In these hypoplastic infants, there is marked reduction in the weight of all organs.

The Very Low Birth Weight (VLBW) Infants:

They are those infants born weighing less than 1500 gm (Behrman and Vaughan, 1983).



INCIDENCE