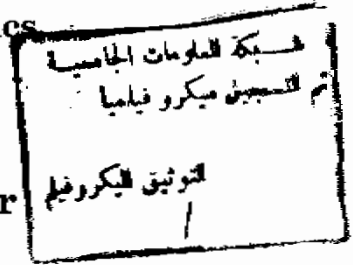


HAZARDS AND MANAGEMENT OF HIGH RISK NEW BORN

رسالة

ESSAY

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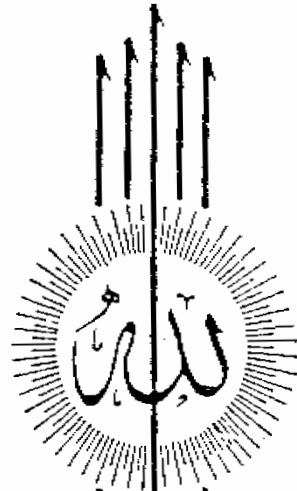
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قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

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ABBREVIATIONS

BR	: Bilirubin Determination
CHF	: Congestive Heart Failure
CMV	: Cytomegalovirus
CPAP	: Continuous positive airway pressure
ECK1	: Escherichia Coli K1
ECMO	: Extracorporeal membrane oxygenation
GBS	: Group B-beta- hemolytic streptococci
GDM	: Gestational diabetes mellitus
GVH	: Graft versus host
HCT	: Hematocrit
HFJV	: High frequency, jet ventilation
HFPPV	: High frequency positive pressure ventilation
HIV	: Human Immuno-deficiency Virus
HMD	: Hyaline Membrane Disease
HSV	: Herpes Simplex Virus
ICH	: Intracranial Hemorrhage
IDM	: Infant of Diabetic mother
IPPV	: Intermittent positive pressure ventilation
LBW	: Low birth weight
RDS	: Respiratory Distress Syndrome
RLF	: Retrolental Fibroplasia
SGA	: Small for gestational age
TPN	: Total parenteral nutrition
TTN	: Transient Tachypnea of Newborn
UCB	: Unconjugated bilirubin
VLBW	: Very low birth weight

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INTRODUCTION AND AIM OF THE WORK

The recent advances in neonatal intensive care unit helped to great extent the identification and management of high risk newborn. This have resulted in improvement in neonatal survival and perceptile decrease in neonatal mortality.

Resuscitation of newborn should be present at delivery of all high risk newborn. Successful performance in this situation involves knowledge of perinatal physiology and principles of resuscitation, mastery of technical skills and the ability to interact successfully with delivery room physicians.

The high risk newborn may be exposed to a number of critical situations, that may be associated with increased morbidity if not mortality.

This work represents the hazards and the recent advances in the care and management of the high risk newborn.

**CARE IN THE DELIVERY
ROOM**

CARE IN THE DELIVERY ROOM

Resuscitation is a word derived from the latin resuscitar "to arouse again". Preparation for resuscitation begins before delivery. Adequately trained personnel must be available and equipment must be ready. Every delivery room must be ready for any emergency. Physicians and nurses should be familiar with the location of all equipment and practice sessions should be performed periodically to re-emphasize the proper procedures and techniques. (*Gregory, et al, 1986*).

High risk deliveries and caesarean deliveries should be attended by a physician skilled in resuscitation techniques and whose primary responsibility is for the infant.

Resuscitative efforts are directed toward the following :

1. Expansion of the lungs by clearing the upper air way and ensuring a patent route to the trachea.
2. Increasing the arterial PO₂ by providing adequate alveolar ventilation, with added oxygen if necessary.
3. Supporting adequate cardiac output.
4. Ensuring that oxygen consumption by the neonate is minimized by reducing heat losses in the immediate postpartum period.

Equipment needed for new born resuscitation :-

1) Radiant warmer with procedure table or bed which should be tiltable and permits partial extension of the infant's neck.

Heat lamp for warming the very low birth weight infant are also useful.

2) Oxygen source with adjustable flowmeter and adequate length of tubing. Humidifier and warmer are desirable although not essential.

3) Flow-through anesthesia bag with adjustable pop-off valve capable of delivering 100% oxygen.

Ambu bags are not acceptable, since they cannot deliver more than 40 percent oxygen, cannot provide continuous oxygen flow out the mask.

4) A suction unit with a soft tip to the catheter, it should be set at 100 mmHg. to prevent damage of the oropharyngeal mucosa.

5) Face mask (s) of appropriate size.

6) Stethoscope (infant or premature-sized head is essential).

7) Emergency box containing :-

a- Laryngoscope with no.0 and no.1 blades.

b- Extra batteries.

c- Flanged and straight endotracheal tubes (2.5, 3.0 and 3.3 mm internal diameter), two each.

d- Drugs :-

Sodium bicarbonate (0.45 and 0.90 mEq/ml) epinephrine (1 : 10.000), Dextrose 25%, calcium gluconate 10%, naloxone, atropine, Albumin 5% and Nacl 0.9%.

-
- e- Umbilical catheterization tray and No. 3.5 and 5F catheters.
 - F- Syringes (1.0, 3.0, 5.0, 10.0, 20.0 ml).
needles (18-25 gauge)
 - T- connectors and stopclocks.
- 8) Transport incubator and battery- operated heat source and portable oxygen supply, should be available if the delivery room and nursery are not in close proximity.
 - 9) Monitor to measure the intravenous pressure.
 - 10) Needle electrode inserted under the skin to provide continuous ECG and heart rate values (*Michael, and Epstein, 1991*).

Resuscitation Technique

In an ideal ward pediatrician would attend all deliveries which are likely to produce an infant requiring resuscitation. The obstetrician should inform the pediatrician by all data from the mother's social, medical and obstetrical history. (*Fletcher, 1984*).

If possible the following information should always be readily available for the resuscitation :

- 1- Maternal age, parity and marital status.
 - 2- Gestational age.
 - 3- Reasons for preterm delivery.
 - 4- Data on foetal growth during this pregnancy .
 - 5- The results of any diagnostic amniocentesis or ultrasound
-

assessments which have been carried out.

- 6- Illness in this pregnancy e.g. diabetes, tuberculosis, malaria, rubella.
- 7- Complication of this pregnancy e.g. toxæmia, abruption.
- 8- Important drugs taken during this pregnancy e.g. anticonvulsants, anticoagulants, and analgesics, there is no need at this stage to enquire about iron, vitamins and antibiotics.
- 9- Previous perinatal morbidity and mortality e.g. stillbirths neonatal deaths or infants admitted to a NICU.
- 10- Health of the surviving infants e.g. cot deaths, cerebral palsy, chromosomal abnormalities or hereditary diseases such as haemophilia, muscular dystrophy or cystic fibrosis.
- 11- Maternal health during labour e.g. temperature, evidence of infection.
- 12- Course of labour e.g. induction, duration of first and second stage, indications or intervention by forceps or caesarean section.

After the birth of the baby's head, the oropharynx and nasopharynx are suctioned with a bulb syringe before the baby's first breath and while the chest is compressed in the vaginal canal by the pelvic floor (vaginal squeeze) to prevent aspiration of meconium, blood, debris and mucous into the trachea with the onset of respiration. This procedure may be the most important
