

1 Introduction

The vast majority of newborn babies require little more than a clear airway and adequate warmth to support the first few minutes of adaptation to extra-uterine life. The success of human evolution and the exceptionally high survival rate of human infants attest to this. Unless specific problems need urgent attention, babies should be given to their mothers as soon after birth as the mother is ready.

2 Immediate care of the normal newborn infant

2.1 Welcoming the newborn infant

In his book *Birth without Violence*, Frederick Leboyer described a number of measures designed to minimize 'the shock of the newborn's first separation experiences': the use of a dark delivery room, delayed clamping of the umbilical cord, gentle massage, and a warm bath for the infant. Controlled trials of these specific measures have not shown any effects, either adverse or beneficial, on infant health, neuro-behavioral status in the first few days of life, or subsequent development. The fact that no long-term advantages of the specific measures advocated by Leboyer have been demonstrated does not obviate the need for treating the newborn with the regard and respect due to any human being, including gentleness and avoidance of excessive noise in the environment.

2.2 Ensuring a clear airway

The practice of routine suctioning to remove secretions from the newborn infant's oral and nasal passages has not been assessed in any clinical trials, and its value is uncertain. Possible benefits of the practice include improved air exchange, reduced likelihood of aspiration of secretions, and, perhaps, reduced acquisition of any pathogens present in the amniotic fluid or birth canal. Potential hazards include cardiac arrhythmias, laryngospasm, and pulmonary artery vasospasm.

Most healthy babies require no suction, they can usually clear their own airways. If nasal and pharyngeal suctioning is required, care should be taken to minimize pharyngeal stimulation. Suction bulbs, rather than catheters should be used, because suction bulbs are less likely to induce cardiac arrhythmias.

The practice of routine suctioning of the stomach was introduced following an untested suggestion that the respiratory distress of infants

of diabetic women often resulted from regurgitation and aspiration that might have been prevented by gastric suctioning. As the passage of the tube during the immediate neonatal period may produce bradycardia or laryngospasm and disruption of prefeeding behavior, there is no justification for routine gastric suctioning.

2.3 Maintaining body temperature

The recommendation that all babies be kept warm immediately after birth is based on a large body of evidence about thermal physiology of both newborn animals and humans. Newborns can maintain their body temperature in a cool environment only by greatly increased energy expenditure. Even vigorous newborns exposed to cold delivery rooms may experience marked drops in body temperature and develop metabolic acidosis during the first two hours of life.

Babies should be dried with prewarmed towels, giving particular attention to drying the head. They should be held by their mothers, preferably in skin-to-skin contact, and covered with a dry warm blanket. They may be held by the father or companion, or placed under a radiant warmer or in an incubator, if the mother is unable to hold her baby.

2.4 Initiation of breastfeeding

For several decades in developed countries the usual practice was to separate the mother from her baby soon after birth. After a brief visit with his or her mother, the baby was transferred to a nursery. Bottles of water or glucose water were routinely given for the first and subsequent early feeds.

These unhelpful routines were phased out when research identified the beneficial properties of colostrum. Further changes came with the growing belief that early contact between mother and infant would enhance the mother's attachment to her baby. Results of the small controlled trials comparing early versus late contact, including timing of breastfeeding, are inconclusive. The implications of this are that mothers should have contact with their babies as soon after birth as they wish, and for as long as they wish.

Babies exhibit wide ranges in normal behavior. Some, but not all, are ready to feed immediately after birth. Interventions aimed at either delaying or speeding-up the time of the first feed should be avoided (see also Chapter 46).

* 2.5 Prophylactic administration of vitamin K to prevent hemorrhagic disease

The natural population incidence of hemorrhagic disease in early infancy due to vitamin K deficiency is not known, because infants at high risk have been given prophylactic intramuscular vitamin K at birth. Oral or no prophylaxis has been reserved for healthy term infants. In the 1950s, before prophylaxis was given, fully breastfed infants were said to have an incidence of about 4 per 1000 births, with most being classic hemorrhagic disease of the newborn occurring within the first 10 days of life. The incidence may have been high because of the relatively common occurrence of birth trauma and because the practice of delaying breastfeeding denied infants colostrum with its relatively high vitamin K content. Classic hemorrhagic disease, occurring predominantly from the umbilicus and gut or into the skin, can be totally prevented with a single dose of vitamin K given at birth.

The main concern now is adequate prophylaxis for late hemorrhagic disease, a rarer but more serious disorder, which is largely confined to infants who are fully breastfed. The concentration of vitamin K in cow's milk or infant formula is considerably greater than in human milk. Late hemorrhagic disease usually presents at 2–12 weeks of age, and is often fatal or leaves serious morbidity due to intracranial hemorrhage. In 40–60% of cases, there is another underlying problem, such as malabsorption or liver disease, contributing to the vitamin K deficiency.

Recent data indicate that the rate of the late vitamin K deficiency bleeding is about 1 in 17 000 without prophylaxis, in the range of 1 in 25 000 to 1 in 70 000 in infants who have had a single oral dose of 1–2 milligrams at birth, and 1 in 400 000 after a single intramuscular injection at birth.

Although intramuscular vitamin K is the most reliable and effective prophylaxis, giving an intramuscular injection at birth is invasive and painful. There has been considerable debate as to whether it is associated with cancer or leukemia, and although not completely resolved, the weight of evidence favors no association. Very similar rates of protection against classical and late hemorrhagic disease can be achieved by giving repeated oral doses, either 1 milligram weekly or 25 micrograms daily. Undertaking this form of oral prophylaxis requires that parents accept responsibility for ensuring the course is completed.

* 2.6 Prophylactic measures to prevent eye infections

The Credé procedure of instilling silver nitrate routinely into the eyes of all newborn babies, introduced in 1881, was credited with the

control of gonococcal ophthalmia of the newborn in the last century. As a result, many countries have a legal requirement that one of a list of approved chemical agents be instilled routinely into the eyes of all newborn infants, with the aim of preventing infectious conjunctivitis. No controlled trials have been carried out to ascertain whether or not this is a more effective means of preventing blindness than careful observation of the newborn, followed by adequate treatment of any conjunctivitis that might appear. In circumstances where the incidence of bacterial ophthalmia is high, routine chemical prophylaxis may be useful.

In these circumstances, the next question concerns the choice of the most effective and least harmful agent. Silver nitrate results in more chemical conjunctivitis and provides no greater protection than tetracycline or erythromycin against gonococcal ophthalmia. It is ineffective against *Chlamydia* (which in many areas is the most common cause of neonatal ophthalmia). It should no longer be used. Both tetracycline and erythromycin provide protection against chlamydia, as well as gonococcal conjunctivitis.

Topical agents applied to the eyes of newborn infants may decrease eye openness and inhibit visual responses. This may disrupt the visual interaction between mother and baby during the first hour of life. If topical agents are necessary, their use should be delayed for an hour after birth. Mothers and babies should be able to enjoy the immediate closeness of the first hour or so after birth before chemical agents are applied.