

atelectasis, of pulmonary collapse, and of pneumonia. The reason for so many premature babies dying within the first 24 hours after birth can be realised.

Also, one must realise that the mortality is highest among infants of low birth weight; the further on pregnancy advances the greater is the chance of survival of the baby, but not if the baby is being subjected to the damaging influence of toxæmia. The external characteristics of the premature baby are well known, but suffice it to say that no one feature is constant.

The heart as a rule beats fairly strongly, although it may be incompletely developed, but the control of the distribution of the blood is defective owing to sluggish control from the centre in the brain. The blood vessels are more fragile than in the mature child, and are more liable to rupture during parturition.

The blood varies in some important points from that of the full term baby. Two-thirds of the iron present in the full term baby is laid down in the last three months of pregnancy, and in the premature baby this loss is a serious feature.

Also, there is increased blood destruction in the premature baby after birth. There is a breaking down of the red blood corpuscles in the normal full term baby, but this is increased and goes on for a longer time in the premature baby, giving rise to jaundice and marked anæmia. In addition to this deficient storage, increased destruction and loss of iron, the blood-forming system of the premature baby is less mature and less efficient than that of the full term baby.

The respirations in the premature baby are shallow and irregular, due to the fact that the respiratory centre in the brain fails to react to the normal stimuli of respiration. The periods of cessation of breathing, or apnoea, which occur, are often due, however, to intracranial hæmorrhage occurring at birth and involving the respiratory centre. Cyanosis and death may occur in these periods. The lungs are incompletely expanded owing to the fact that the baby does not take the first good deep breath and give the lusty cry of the normal full term baby. Pneumonia is much more likely to occur in this collapsed type of lung.

In addition to sucking badly the premature baby also swallows with difficulty. The stomach capacity is small, and the normal digestive ferments in the stomach and intestine are present in only small amounts. Intestinal movement is impaired and absorption of food is poor. The meconium is scanty since this usually accumulates during the last two months of pregnancy.

When we come to consider the management of the premature baby, our care should commence in the antenatal period. We should try to preserve the health of the mother and endeavour to bring the baby to the greatest size compatible with the difficulties that are present in the management of the labour. We should remember that a delivery by the vertex is less liable to result in intracranial hæmorrhage than is delivery by the breech. Once the baby is born our immediate care is to prevent loss of heat by rapidly enveloping it in a warmed blanket or cotton wool.

The use of proper resuscitation methods will help to reduce the mortality of the premature baby. Vigorous methods of promoting respiration are fortunately disappearing; we remember that these babies are in a condition of asphyxia and shock, and want as little handling as possible. In addition we have the factors of immaturity of the respiratory centre and weakness of the respiratory muscles. The ideal methods of resuscitation are not always available since the labour occurs rapidly and unexpectedly in many cases. After wrapping up the baby it is placed on an inclined sloping surface so that the head is slightly lower than the feet—this allows swallowed

mucus, etc., to gravitate out of the lungs and can be further removed by a soft rubber catheter.

Prompt clamping of the cord after birth has most recently been found to be advisable in all babies—not only prematures—and no longer do we wait until all pulsation has ceased, since the extra blood so obtained is so small and of so little value. Oxygen want is the chief cause of the first inspiratory gasp, so that this prompt clamping of the cord provides this ready stimulus to respiration.

With these premature babies we cannot give sensory stimulation to the skin since chilling is most to be avoided. The most effective way of bringing about expansion of the lungs is by administering a mixture of 5 per cent. carbon dioxide in oxygen by means of a small nasal catheter. For three to five minutes in every three hours 30 per cent. carbon dioxide in oxygen is given to induce further expansion of the lungs and prevent collapse.

I shall not go into the nursing details, but there is one little practical point I should like to make as regards oiling the baby—mineral oil such as liquid petroleum does not decompose whereas olive oil does.

The humidity of the atmosphere in which the premature baby is placed is important, and that best suited to stabilising the body temperature of the premature appears to be about 65 per cent. (using a wet and dry bulb thermometer) with a nursery temperature ranging from 75 to 100 deg. F.

The next point is the administration of thyroid extract in order to maintain the body temperature. Dr. Eric Prichard has found that the dosage of one tenth of a grain of thyroid extract for each pound body weight, repeated every six hours if necessary, stimulates the metabolism and helps the debilitated premature babies as does nothing else.

The iron deficiency, which I hope I have emphasised, must be combated. In the case of an extremely anæmic baby in the early days of life a small blood transfusion, may be the means of saving a life. It is essential, however to give iron to all premature babies, whether breast or artificially fed, and the best method is by giving small doses of ferri et ammonium citrate, grains one to two a day (made into a mixture with dill water). This may be added to the bottle if the baby is bottle fed as there is very little taste, or may be given from a medicine spoon. Cow's milk has less than half the iron content of breast milk, and when diluted it contains still less. Egg yolk contains a small amount of iron, and green vegetables such as spinach contain a little more, but it has been found that the iron from the latter is poorly utilised and the feeding of an excess may actually result in removing more iron from the body than it adds.

During the last weeks of pregnancy the foetus stores up fat and therefore, with this fat and fat soluble vitamin storage at a premium, it is necessary to supply vitamins A and D to the premature baby. Vitamin A is stored in the liver as well as in the fat depots of the body. A breast-fed baby may not receive adequate vitamin A because the mother's diet is deficient in butter, eggs, green vegetables, carrots, liver, etc. Another point to make here is that excessive dosage with paraffin results in the loss of this vitamin by the bowel.

Vitamin D is especially required by the baby during the period of active growth, and, as this rapidity of growth is proportionately greater in the first few months of life in the premature baby, the need for vitamin D is greater.

As you know, large amounts of fat, such as cod-liver oil, cannot be given to these premature babies without upsetting the digestion; also an excess of fat in the diet is liable to prevent absorption of calcium in the intestinal tract, which is most undesirable in these babies, who are particularly susceptible to rickets. Vitamins A and D concentrates are therefore advisable. Adexolin is one of several

[previous page](#)

[next page](#)