

Medical care for baby before birth

Fetal medicine is a newly developed specialty which cares for the health of unborn babies

Pregnancy is an exciting experience for women. However, occasionally health problems occur either in the mother or the unborn baby.

Advances in medical technology have now made it possible to detect fetal abnormalities at an early stage which gives parents more options on how to deal with such problems.

With some conditions it is also possible to initiate treating the baby before birth. Fetal medicine is a new specialty which focuses on the various health aspects of the unborn baby.

Down's syndrome is a common chromosomal abnormality that can be diagnosed before birth. This condition, caused by an extra copy of chromosome 21, is characterized by mental retardation and can have significant impact on the family and society.

Traditionally, this syndrome is diagnosed via a process called amniocentesis which involves drawing amniotic fluid through a fine needle. However, it carries a 0.5 to 1 per cent risk of miscarriage.

In recent years, various non-invasive screening programmes have become available which make it possible to categorize pregnant mothers as high or low risk. One of the commonly used approaches is based on fetal neck fold thickness (nuchal translucency), a mother's blood test, and the mother's age. Invasive test (e.g. amniocentesis) can then be offered to high risk mothers so the overall risk of miscarriage can be minimized.

Structural abnormality is another important group of fetal disease that can be detected before birth, usually with a high-resolution ultrasound scan performed around 20 weeks. Common conditions that can be detected by this approach include cleft lip, congenital heart disease, urinary tract abnormalities, and abdominal wall defect etc. More recent advances in ultrasound scan equipment have made fetal structure assessment possible at even earlier gestation.

Discovering an unborn baby has a disease, is very distressing for parents and many turn to the internet to gather as much information about the problem as possible. This information can be very confusing which is why informative counseling is important to parents in this situation and this is best provided by a fetal medicine specialist who can address all their concerns.

With professional support, parents can be better prepared to accept a baby with differences. Some parents may consider pregnancy termination. In selected cases, fetal therapy can be an option.

Fetal therapy refers to treatment carried out on a baby before birth. In most circumstances, the primary aim is not to cure the disease completely, but rather to stabilize it to avoid permanent damage to the baby.

The advantage of this is that baby can stay within the mother's womb till a more mature gestation which in turn can facilitate medical treatment after birth and improve the outcome.

Fetal anaemia is an example of a condition which can be successfully treated with fetal therapy. This condition may have various causes. One common cause, especially among Caucasians, is Rhesus group incompatibility.

This occurs when a pregnant mother with Rhesus negative blood type is carrying a Rhesus positive baby. In response, her body produces antibodies which can cross the placenta and destroy the baby's red blood cells causing fetal anaemia. Without treatment, this condition can cause organ failure or even fetal death before birth.

Using high-resolution ultrasound scan equipment as guidance, a fetal medicine specialist can transfuse blood into the baby within the womb.

Although blood transfusion does not eradicate the underlying cause of anaemia, it can maintain the baby's haemoglobin level so organ failure can be avoided and the risk of premature delivery is minimized.

After birth, the baby would be under care of neonatologist. Since the baby's circulation has been completely separated from mother's circulation, the destruction process of the baby's red cell by mother's antibodies no longer exists.

This example shows how fetal medicine together with appropriate antenatal care and support from neonatologists can be used to successfully treat an unborn baby and bring about a successful outcome.

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