

informedhealthonline.org

INDEPENDENT, OBJECTIVE AND EVIDENCE-BASED

Fact Sheet: Corticosteroids before birth for preterm babies

Babies who are born far too soon are not completely ready for life outside the uterus (womb), and so they face quite a lot of risks. While sometimes there is no warning and a baby is born very suddenly, often there is at least a bit of time before the baby is actually born. That means there are some things that can be done then to help your baby have a better chance of survival once he or she is born. One of these is taking corticosteroids (often simply called steroids) to help your baby's lungs develop quickly. This kind of treatment before birth is called prenatal or antenatal corticosteroid therapy. Even an extra day or two could make a big difference here.

What is preterm birth?

Labour usually starts after nine months of pregnancy. When a pregnancy completes its full normal course, it is called a term pregnancy. Giving birth full-term means the baby is born at 40 weeks of pregnancy, give or take a few weeks. However, sometimes labour starts a lot earlier or there are complications in the pregnancy that mean that the baby has to be born sooner, for example by caesarean section (an operation). When a pregnancy is ended prematurely by caesarean or an induction of labour, it is called an elective preterm birth. When labour starts by itself, it is called spontaneous preterm birth.

Preterm birth is quite common in Germany: around 7 out of every 100 pregnancies end before term (7%). Some things increase the risk of preterm birth, such as having an infection or a problem with the cervix (the neck of the uterus). Multiple pregnancies (twins or more) are also a risk factor: around half of twin pregnancies and almost all triplets will be preterm births. Most of the time, though, there is no explanation for why pregnancy ended before term.

All babies born before 37 completed weeks of pregnancy are considered to be preterm. Weeks of pregnancy are also called weeks of gestation. But because the baby's body is still developing very quickly at that time, each week can make a big difference in how ready the baby is to live outside the womb. There are three major classifications of preterm birth, each about a month long: extremely preterm (less than 28 weeks), very preterm (from 28 to 31 weeks) and mild preterm (32 to 37 weeks).



The younger a baby is, the smaller and less developed he or she will be. The baby can keep developing outside the womb, but being born too early is particularly a problem for the baby's ability to breathe. This is because although the baby's lungs have been developing since the beginning of pregnancy, it is only after 32 weeks that the lungs are really starting to get ready to work on their own. This means that healthy babies who are born mildly preterm do not have such a high risk of problems as "very" and "extremely" preterm babies.

How can I tell if I am in preterm labour?

If you think you are in preterm labour, the chances are high that you are right, so it is important to contact your doctor, midwife or hospital. Especially if it is before the end of 32 weeks of pregnancy, labour is an emergency. The sooner you get good medical care, the more your baby could be helped.

There are two major signs that you might be going into preterm labour:

- Regular contractions (labour pains)
- Rupture of the membranes (breaking of the bag of waters that surrounds your baby)

The contractions being regular is more important as a sign of preterm labour than the pain: in fact, it might feel more like cramping than pain, especially preterm. Contractions of the uterus are normal in pregnancy, even when you are not actually in labour. But if they are very regular and are not going away, it could be labour. Bright red bleeding is

also always an emergency.

What can I do if I am in preterm labour?

There are four main things you can discuss with your doctor if you are in preterm labour:

- Deciding where to give birth - your plans might have to change if the best facilities are not available where you originally wanted to have your baby. Preterm babies who have a very low birthweight appear to have a greater chance of survival if they are cared for in a large neonatal ward. You can read more about that here;
- Particular drugs (called tocolytics) that are often used to try to stop labour contractions;
- Antibiotics if there is a risk of infection to you or your baby;
- Corticosteroids that could help your unborn baby's lungs develop and mature very quickly.

Tocolytic drugs can sometimes stop preterm labour, but they usually only delay the birth for a while. This is important, though, because an extra bit of time - even a day - can make a difference. It is this delay that gives you time to use corticosteroids if they are suitable for you and your baby.

What could corticosteroids do for my baby?

Corticosteroids are drugs that are synthetic forms of human hormones. When the mother is given an injection of these drugs, they also reach her unborn baby's lungs. One course of this steroid therapy usually involves at least 2 injections in one day.

Around the time between 26 and 33 weeks, these drugs can trigger very quick development in a baby's lungs: even one single course of steroid therapy can make it more likely that your baby's lungs will be able to work better when he or she is born.

When mothers take corticosteroids around this time, many preterm babies will have a much better chance of survival

after they are born. Some of the proven benefits of antenatal corticosteroids for the baby are:

- Lower risk of serious breathing difficulties - the risk is reduced from 26% to just over 17%, which means that serious breathing difficulties can be avoided in a further 9 out of every 100 babies.
- Much lower risk of bleeding in the brain (intraventricular haemorrhage) or the serious bowel condition called necrotising enterocolitis (NEC).
- Increased chance of survival - for every 1,000 mothers who take the corticosteroids, an extra 47 of the babies born alive will survive.

You can read more about the trials which have shown these benefits here (URL: <http://www.informedhealthonline.org/index.350.en.html>) . Preterm babies benefit when mothers take antenatal corticosteroids. A single course of corticosteroids is usually enough.

What about adverse effects of corticosteroids?

When pregnant women take a single course of corticosteroids, there are no known common adverse effects for the baby. Studies which have followed up babies into childhood or adulthood have not found definite differences in growth or development when mothers had a single course of corticosteroids to help the baby's lungs mature.

We do not yet know enough about the possible adverse effects of taking more than one course of corticosteroids. The extra risks of using multiple courses of the drug could be avoided by using only one course, or possibly by using lower doses in any repeat courses.

It was observed that more of the mothers who took the corticosteroids had sepsis (a serious bacterial infection) after the birth. More research is needed to find out whether this is a coincidence or whether taking the drug really increases the risk of sepsis. Corticosteroids have not been shown to have any major adverse effects in the pregnant women who receive them.

Will my baby be alright?

If your baby is born preterm, a special team will work to take care of him or her. They will want to monitor your baby carefully, even if she or he was only mildly preterm. The baby may need a lot of help to breathe, to stay warm and to be nourished. This could mean that he or she needs to be in special or intensive care, and attached to several machines for monitoring and breathing support.

Just as corticosteroids before the birth can help the lungs mature, a type of drug called a surfactant is often used after the birth to help the lungs work as they should. Lungs that are not mature enough are stiff: they cannot easily inflate and expand to let the baby breathe in and out easily. Surfactant is a fluid that the baby would usually start producing for her- or himself after about 32 weeks of pregnancy.

Having a baby who has serious complications or who needs special or intensive care is usually an anxious or very frightening time for the family. Even though your baby will need specialist care, there is still a lot you can do for him or her. You could still be able to breastfeed your baby later, and the baby could be fed your milk when he or she is ready for milk. So getting support to help you produce and pump milk is one of the important things you can do if you cannot yet breastfeed. It is also especially important that you look after yourself so that you can recover from the birth, cope with the emotions and be ready to be involved as much as you can in your baby's care.

At one month of age, your baby is likely to be the size that he or she would have been at that stage of pregnancy: for example, if your baby was born at seven months of pregnancy, at one month of age they will be the size of an unborn baby at eight months of pregnancy. So for a while, your baby will continue to be "younger" than babies that went to full term. How well your baby could be depends on lots of factors that will be individual to you and your baby, so it is hard to predict what might happen. It is likely, though, that your baby will be ready to leave hospital at around the age he or she would have been born if the pregnancy had gone full term.

Author: German Institute for Quality and Efficiency in Health Care (IQWiG)

Glossary

hormones

“Hormones” is the collective term for different types of messenger substances in the body. They are produced in different organs or tissues and released into the blood or the lymphatic system to be distributed throughout the body. Hormones only have an effect on those parts of the organism that have a corresponding docking site. This is how hormones can have such specific effects. Insulin, estrogens, vasopressin and thyroxine are some well-known hormones. Many medical ingredients imitate the effect of hormones.

infection

In medicine, we speak of an infection when a person has caught a germ (an infectious agent). This germ can be a bacterium, a virus, a fungus or a worm. The germ multiplies and then either spreads throughout the body or only attacks one particular organ. As long as there are no signs of a disease, this is called an asymptomatic infection. When the body shows a reaction to the germ in the form of symptoms, this is called a symptomatic infection (an infectious disease). The period between the moment the germs enter the body and the moment the first symptoms of the disease appear, is called the incubation period. It may last a few hours or days, or even many years. An infection does not necessarily have to lead to the onset of a disease.

Sources

Crowther CA, Harding JE. Repeat doses of prenatal corticosteroids for women at risk of preterm birth for preventing neonatal respiratory disease. *Cochrane Database of Systematic Reviews* 2007, Issue 3. [Cochrane summary (URL: <http://www.cochrane.org/reviews/en/ab003935.html>)]

Enkin M, Keirse MJNC, Neilson J, Crowther CA et al. *A guide to effective care in pregnancy and childbirth*. Third edition. Oxford: Oxford University Press. 2000. [Full text (URL: <http://www.childbirthconnection.org/article.asp?ClickedLink=194&ck=10218&area=2>)]

German Institute for Quality and Efficiency in Health Care (IQWiG). *Relationship between provider volume and outcomes in the care of preterm infants and neonates with very low birth weight. Final report V07-01. Version 1.0*. Cologne: IQWiG. August 2008. [Executive summary (URL: http://www.iqwig.de/download/V07-01_Executive_summary_Relationship_between_provider_volume_and_outcomes_in_the_care_of_preterm_infants_and_neonates_with_very_low_birth_weight_Final_report_V07-01_Version_1.0)] [Full text (URL: <http://www.informedhealthonline.org/> http://www.iqwig.de/download/V07-01_Abschlussbericht_Menge_und_Ergebnis_bei_der_Versorgung_von_Fruehgeborenen.html) - in German]

Roberts D, Dalziel S. Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. *Cochrane Database of Systematic Reviews* 2006, Issue 3. [Cochrane summary (URL: <http://www.cochrane.org/reviews/en/ab004454.html>)]

Stiles AD. Prenatal corticosteroids - early gain, long-term questions. *NEJM* 2007; 357: 1248-1250.

Working Party on Preterm Birth, Bastian H (Chairperson). *Care around preterm birth: a guide for parents*. Canberra: National Health and Medical Research Council. 1997.

The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at [**www.informedhealthonline.org**](http://www.informedhealthonline.org)

Disclaimer

This information was prepared and published by the German Institute for Quality and Efficiency in Health Care (IQWiG). It is based on the evidence and other scientific literature available at the time of publication. The information is intended for the use of patients in Germany. It is not intended to for use to diagnose illnesses and the information is not intended to substitute for medical advice.