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Preterm birth: Does it help the baby if the mother takes corticosteroids before the birth?

When a baby is at risk of being born too early, one course of antenatal corticosteroids can help the baby's lungs to develop more quickly. This reduces the risk of the baby dying or having serious complications.

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Preterm or premature birth is when a baby is born before 37 completed weeks of pregnancy. Babies who are born very early can have trouble breathing because their lungs are not properly developed. Corticosteroids are drugs which are a synthetic form of human hormones. Around the time between 26 and 33 weeks of pregnancy, these drugs can work like a trigger on an unborn baby's lungs, speeding up their development. It will reach the baby's lungs if the mother is given an injection before the baby is born, and as little as one day's worth of the drug could make a difference. You can read more about corticosteroids and preterm birth in our fact sheet (URL: http://www.informedhealthonline.org/index.351.en.html) .

Researchers from the Cochrane Collaboration searched for good-quality clinical trials about the use of corticosteroids before birth (called antenatal or prenatal corticosteroid therapy). They looked particularly at how many babies died and how many had serious complications.

The researchers found 21 suitable trials that could help answer their questions. The trials included more than 3,800 women who were likely to give birth prematurely. Some of the women gave birth to twins or more than two babies at the same time. This meant that the researchers could study some outcomes in over 4,200 babies.

The combined results of the trials showed that treatment with antenatal corticosteroids reduced the number of babies who were born alive but died within a few weeks after birth (neonatal deaths). Out of every 1,000 mothers who took corticosteroids, an additional 47 babies lived.

Sometimes babies have serious breathing problems at birth. The medical term for this is respiratory distress syndrome (RDS). All of the 21 trials reported this information and showed that the percent of births where a baby had respiratory distress was reduced from 26% to just over 17% when the mothers had taken corticosteroids. This means that serious breathing difficulties at birth were avoided in an additional 9 out of every 100 babies.

Another serious risk to preterm babies is bleeding in the brain (cerebral or intraventricular haemorrhage). Corticosteroids before birth reduced this risk from 11 out of every 100 babies (11%) down to 6 out of every 100 (6%).

Babies whose mothers had taken corticosteroids were also half as likely to get necrotising enterocolitis (NEC), a dangerous inflammatory disease that harms the baby's bowel. The risk was reduced from just over 6% down to 3%.

For the baby, there did not appear to be a risk of major harm from the corticosteroids. Where longer term outcomes for the children were available, it did not appear as though the children's growth or development had been harmed by the corticosteroids their mother took before they were born.

There is some concern that multiple courses of corticosteroids might cause some harm. One course usually consists of at least two injections in one day. That potential risk could be avoided by taking only one course of corticosteroids or possibly by taking lower doses if further courses are used.

A single course of corticosteroids did not appear to have any immediate drug adverse effects for the mother. However, more of the women who took the corticosteroids had sepsis (a serious bacterial infection) after the birth. More research is needed to be sure whether this was a coincidence or whether corticosteroids in fact increase the risk of sepsis.

Babies benefited from their mothers taking corticosteroids, even if it was only one day before the birth. Antenatal corticosteroid therapy was also effective in mothers who had high blood pressure (hypertension) or whose waters had broken some time before the birth (premature rupture of the membranes).

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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.

Cochrane Collaboration

The Cochrane Collaboration is an international network of thousands of researchers and others. They work together in teams called Cochrane Review Groups to answer questions about health care by doing systematic reviews of evidence. To achieve this, the members of the Collaboration have developed systems and methods for systematically finding and analysing the results of trials of health care interventions. The goal of the Cochrane Collaboration is to help patients, health care practitioners and others make more informed decisions about health care. You can read more about the Cochrane Collaboration at their website.

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.

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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)]

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.

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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**

Disclaimer

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