Minnesota Neonatal Physicians, P.A.

Dexamethasone (Decadron®) Information Sheet

You are receiving this information sheet because your baby's doctor has recommended dexamethasone (trade name Decadron®) for your baby. Dexamethasone is a powerful steroid medication that often helps a baby's lungs to work more effectively, even when other medications and treatments have not helped. Dexamethasone can also produce side effects and has recently been associated with an increased risk of cerebral palsy. This information sheet will assist you to understand the benefits and risks of dexamethasone.

When and why is dexamethasone recommended?
Your baby's physician would only prescribe dexamethasone if your baby has severe lung problems and has not responded to the usual treatments. Preterm babies (born at <37 weeks) and some full-term newborns that have severe lung problems, can develop scarring and abnormal growth of the lung, called bronchopulmonary dysplasia (BPD). Babies with immature lungs, infections or birth defects of the lungs are at risk of developing BPD. The severity of BPD may require an infant to depend on a ventilator for many weeks, which increases the risk for pneumonia, extends the hospitalization, leads to long-term disability, and increases the risk of death. When BPD threatens a baby's life, significantly prolongs the need for a ventilator, or prevents an infant from going home, dexamethasone may be indicated. Because of the risks associated with dexamethasone, it is not indicated in less serious cases.

The routine use of dexamethasone to prevent or treat BPD is not recommended. Dexamethasone use should be limited to exceptional circumstances based on your baby's condition and failure to respond to routine treatments. Dexamethasone is only used when other treatments have failed to improve lung function.

What are the benefits of using dexamethasone?
Inflammation of the lungs is a major contributor to the development of BPD. This inflammation can be caused by ventilator treatment of sick or immature lungs, infection in the infant or, perhaps in the mother prior to delivery. Dexamethasone decreases inflammation. This drug is a more powerful version of the body's natural steroid, cortisol. Although the body's natural inflammatory response to injury or infection is usually a helpful body function, excessive inflammation can be harmful and probably leads to BPD. Dexamethasone reduces inflammation and therefore, improves BPD. It is also possible that there are other effects of dexamethasone that work to improve lung function.

In the past, dexamethasone was widely used to treat infants with early signs of BPD, because it is very effective at improving lung function in the short-term. Usually these infants required high levels of supplemental oxygen, ventilator support, and had very abnormal chest X-rays. High doses were used and resulted in short-term improvement. The combined outcome of death or BPD at 28 days of age and/or 36 weeks post conceptional age was lower in infants receiving dexamethasone. However the length of hospitalization and length of time during which supplemental oxygen was required was not lower.

What are the potential complications of using dexamethasone?
The complications of dexamethasone can be classified as either short-term or long-term. Few short-term complications are associated with the low-dose therapy now used. Most of these problems are transient and resolve as soon as the dexamethasone is stopped. Short-term complications can include:

- Elevated blood sugar
- Elevated blood pressure
- Decreased weight gain
- Irritability
- Increased thickness of the heart muscle
- Intestinal bleeding
- Intestinal perforation (requires surgery, placement of an ileostomy, and later, bowel reconnection)

Long-term complications, seen at 1-2 years of age, are quite significant. Findings reported in infants who received high-dose dexamethasone for up to 42 consecutive days included:

- Cerebral palsy
- Impaired growth
- Neurodevelopmental delay
- Lower IQ scores

As a result of these long-term complications the American Academy of Pediatrics recently recommended that "On the basis of limited short-term benefit, the absence of long-term benefits, and the number of serious short- and long-term complications, the routine use of dexamethasone for the prevention or treatment of BPD in infants with very low birth weights is not recommended" (Statement by AAP).

Why is the neonatologist at Children's- Minneapolis recommending dexamethasone for your baby?
Your baby's doctor believes that your baby has an exceptional circumstance involving inflammatory-induced lung injury which has already led to or will lead to the development of BPD. Other possible causes for lung problems have not been found as possible causes of your infant's current lung condition. Considering the high risk of further lung injury leading to either death or BPD and the fact that BPD adversely affects neurodevelopmental outcomes, the benefits of low-dose dexamethasone administered briefly over three days may be helpful

Since 1999, Children's-Minneapolis has employed a low-dose, shortened-duration dexamethasone protocol. In this protocol, dexamethasone is administered beginning with a low-dose (0.1mg/kg/day), which is tapered, and stopped after three days of total treatment. Previously published reports have shown that this approach can be equally effective as high-dose treatment with a lower risk for complications. Low-dose dexamethasone treatment is continued every 10 days up to four treatments if the patient meets retreatment criteria. This method of administration significantly decreases an infant's exposure to dexamethasone compared to the exposure experienced by infants in nearly all research studies.

During the past 25 years we have followed more than 1000 extremely premature (23-26 weeks gestation) infants treated in the NICU at Children's Hospital-Minneapolis in the NICU Follow-up Clinic. Many of these children were treated with dexamethasone. While we do not have a matched control group with which to compare these children, their outcomes (as reported in the medical literature) are equal to or superior to those reported by others. Therefore, your baby's doctor believes that the relative risk/benefir ratio favors the administration of dexamethasone.

If you have any questions or concerns PLEASE discuss them with your baby's attending physician.

REFERENCES

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