Kofinas Perinatal

Providing Care to the Unborn ®

Proper usage of cortico-steroids in pregnancy

There are many diseases during pregnancy that require the use of steroids. The indications may be for maternal treatment, fetal treatment or both. Maternal indications are usually the result of auto-immune conditions such as lupus, sarcoidosis, anti-phospholipid antibodies, recurrent pregnancy loss etc. Fetal indications are for fetal lung maturity in threatened preterm delivery, fetal autoimmune conditions (endocardial fibroelastosis) and fetal placental conditions in RPL secondary to anti-phospholipid antibodies and natural killer cells (NK cells).

There are various steroids that can be safely used in pregnancy and the most important ones are listed on the table below. There are two issues that the physician has to be aware of in order to avoid harm to the fetus:

1. Dosage equivalency
2. Trans-placental passage

Chronic use of steroids for fetal or maternal indications in pregnancy may seriously affect the fetus if the steroid passes the placenta and is bio-available to the baby. Such use has been associated with deficient fetal growth in both animal and human studies. Fetal brain growth is severely affected as well as total body growth with devastating consequences for subsequent postnatal life. Fluorinated steroids that pass the placenta and remain intact exerting their effects on the fetus (Dexamethasone and Betamethasone) are used for fetal specific conditions and can be used only for up to two times during the pregnancy. Three or more dosages of such steroids cause fetal and neonatal growth problems. In contrast, non-fluorinated steroids are metabolized by the placenta and have no fetal effects until after 36 weeks gestation when fetal liver matures and gains the ability to resynthesize the original steroid from the placental metabolites. Therefore, non-fluorinated steroids (prednisone, prednisolone and methylprednisolone) are recommended only for maternal indications, not for prevention of congenital heart block (CHB) in anti-Ro/SSA-positive women or for induction of fetal lung maturity. Fluorinated steroids (dexamethasone or bethametasone) are not metabolized by the placenta and are available to the fetus in an active form. Routine chronic prophylactic therapy with fluorinated steroids for fetal indications is not recommended even in women who previously had children with CHB or skin rash since this therapy has its own side-effects. Chronic suppression of the maternal immune system can only be safely done with the non-fluorinated steroids.

Non-fluorinated	Fluorinated
Cortisone, 25	*Triamcinolone, 4*
Hydrocortisone, 20	*Paramethasone, 2*
Prednisolone, 5	*Betamethasone, 0.75*
Prednisone, 5	*Dexamethasone, 0.75*
Methylprednisolone, 4	

The table to the left gives comparative equivalent dosages among the various steroids in common use. *These dose relationships apply only to oral or intravenous administration of these compounds. When these substances or their derivatives are injected intramuscularly or into joint spaces, their relative properties may be greatly altered.*

Based on the above characteristics, we recommend the use of non-fluorinated steroids for all maternal indications and infertility related indications. Medrol 4 mg every 6 hours is the first choice until 11 weeks and if the treatment is indicated to continue we recommend Prednisone twice a day. The dosage is variable depending on the underlying condition we attempt to treat. The withdrawal protocol for Medrol is given below. Prednisone will be withdrawn on an individual basis based on the original dosage. In general, we reduce the total dosage by one quarter every 3 days until finished.

Medrol 4 mg withdrawal protocol

Day of withdrawal	Morning (number of pills)	Noon (number of pills)	Evening (number of pills)
Day 1	1	1	1
Day 2	1	1	1
Day 3	1		1
Day 4	1		1
Day 5	1		1
Day 6	1		
Day 7	1		
Day 8	1/2		
Day 9	1/2		