

Medication use during pregnancy and lactation

Hedvig Nordeng

Marte Jettestad

Prescribing medication to pregnant and lactating women requires that one also takes into consideration the safety of the fetus and breastfed child. The challenge is to provide the woman with an effective medication that does not harm the fetus or breastfed child.

Recommendations

- Pregnant women should in general be cautious with use of medication, especially in the first trimester (**recommendation**)
- Women with chronic disorders should discuss medication use with their doctor before becoming pregnant (pre-pregnancy counseling) (**recommendation**)
- Serum concentrations of medication with a narrow therapeutic range should be monitored in pregnancy as pharmacokinetic changes may require dose adjustments (**recommendation**)
- Most women who use medication may breastfeed, because the benefits of breast milk outweigh the disadvantages of drugs (**recommendation**)

Literature search

McMaster PLUS (Premium Literature Service), Up to date, PubMed, National Institute for Health and Clinical Excellence (NICE), Cochrane Database, Royal College of Obstetricians & Gynecologists, Danish and Swedish guidelines.

Prevalence

Studies using the Norwegian Prescription Database show that 57% of pregnant women were dispensed at least one medication during pregnancy and that one in three were dispensed a prescription medication during the first trimester in 2004- 2006 (1). In addition, over-the-counter medication and herbal remedies are frequently used (1, 2).

General principles

There is close connection between the woman's blood and fetal blood through the placenta. Most medications have the ability to cross the placenta to the fetus if administered in high enough doses for a long enough duration (3). The exceptions are agents with very high molecular weight, such as insulin and heparin, which does not pass the placenta. The fetus excretes medications mainly via the placenta. The fetus itself metabolizes medications to a very small degree.

Effects of teratogenicity may result in congenital malformations, fetal death, growth retardation or functional disorders (3). The timing and duration of medication use are of great importance in relation to the risk for fetal harm. For example, neural tube defects do not occur after week 6, after closure of the neural tube. Use of tetracyclines will not affect dental and skeletal development before the 4th month of pregnancy, only by later use, as these organs form later in fetal life.

Generally, the most restrictive prescribing is recommended during the first trimester, when the bases for the organs are formed. In the fetal period (second and third trimester) some medications may negatively impact on fetal growth and functional maturation, and should therefore also be avoided after the first trimester (3).

Medications that are indirectly teratogenic, do so by:

- preventing ovulation or implantation (i.e. NSAIDs)
- causing premature contractions of the uterus and thus increasing the risk of spontaneous abortion or preterm delivery (i.e. misoprostol)
- altering blood flow to the placenta (i.e. ACE inhibitors)

Some medicines should not be used close to delivery because they may affect the delivery or the newborn child (i.e. NSAIDs). For example, some newborns have respiratory problems if the woman has used benzodiazepines or opioids over time closely with birth (3).

Pharmacokinetic conditions during pregnancy

Serum concentrations of some medications can decrease throughout the pregnancy mainly due to increased metabolism in the liver and increased excretion via the kidneys. For medications with a broad therapeutic range this has little clinical significance (i.e. most antibiotics). For other medications (i.e. anticonvulsants, antidepressants, methadone) this may result in reduced therapeutic effect and in some cases necessitate an increased dosage. Because of individual differences, it is advisable to monitor the serum concentration of such medications throughout the pregnancy. Within the first week after birth, the woman's metabolism returns rapidly to baseline state, and consequently, doses that have been increased during pregnancy, must be reduced again to avoid risk of overdose and adverse reactions (3).

Lactation

Most medications can be used during lactation (4,5). If the woman has used a medication due to illness during pregnancy, it is likely that she can continue to use it while she is breastfeeding, because the transfer to breast milk is considerably smaller than the transfer during pregnancy. Almost 80% of the adverse events reported in breastfed children have been reported in neonates or infants under two months. If the child is over three months, the risk of adverse reactions through breast milk is considerably reduced. The reason is that children under two months, especially premature babies, have impaired ability to metabolize and excrete medications (4,5).

Sometimes one is in doubt if it is safe to recommend breast feeding when the mother uses medications, for example when the woman uses antipsychotics over a longer period while breastfeeding a child under three months. One possibility is to suggest mixed nutrition, thus giving some breast milk and some infant formula. Some medications should preferably be avoided during breastfeeding, such as lithium, cytotoxic agents, radiopharmaceuticals and gold compounds (4,5).

For questions about drug use during pregnancy or lactation, Regional Drug Information Centers (RELIS), www.relis.no, can be contacted (6). Useful information is also available on the Swedish website www.janusinfo.se (7).

Patient information

Some pregnant women need to use medications during pregnancy because the disease itself carries greater risk for mother and child than medications.

Most women who use medications may breastfeed because the benefits of breast milk outweigh the disadvantages of medications.

TryggMammamedisin is a national service free of charge that answers questions about medicines in pregnancy and breast feeding <https://www.tryggmammamedisin.no/>

Keywords

- Medications
- Pregnancy
- Breastfeeding

Literature

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Last updated: May 21st 2015