AIMS For a better birth...

Medications in Pregnancy

Medications (drugs) should only be prescribed in pregnancy after careful consideration of the risks and benefits to mother and baby. Thanks to a world-wide organisation, the Organisation of Teratology Information (OTIS), who have a service in the UK (UKTIS), we have much more information on studies of medicine use in pregnancy and outcomes for mother and baby than we have ever had before.

This birth information page is not intended to provide advice on all medication in pregnancy but to provide sources of information to facilitate informed decision making. It is always advisable to speak to a healthcare professional for the most up-to-date information, because data about medications can be updated.

Is it safe to take medication whilst pregnant?

Drugs should be prescribed in pregnancy only if the expected benefit to the mother is thought to be greater than the risk to the baby. All drugs should be avoided, if possible, during the first trimester, although for many chronic conditions this may not be possible. Drugs which have been extensively used in pregnancy and appear to be usually safe should be prescribed in preference to new or untried drugs, and the smallest effective dose should be used. Few drugs have been shown conclusively to be teratogenic (harmful to an unborn baby) in humans, but no drug is safe beyond all doubtespecially in early pregnancy.

The tragedies wrought by thalidomide back in the 1960s have meant we are all more aware of the risk of drugs taken during pregnancy. Thalidomide was associated predominantly with limb defects, but it affected many other organs. A total of about 10,000 babies worldwide were affected. None of these abnormalities showed up in animal tests and it was believed to be so safe it was made available over the counter. In the original studies it was not possible to study enough pregnancies to identify a problem, although this became apparent when millions of mothers began to take it.

It can be difficult to identify whether a drug has potential to cause harm to an unborn baby (to be teratogenic) because, if the problem is uncommon, a very large number of mothers would need to be studied for it to show up. Instead, drug side-effects are normally identified by collecting reports of problems via what is called the "Yellow Card" reporting system. This data is analysed nationally and internationally so that any frequent side-effects can be identified and monitored. This monitoring is what has resulted in the advice on the COVID 19 vaccination, which originally was not recommended in pregnancy, to be changed.

If you have a chronic medical condition which means that you need to continue to take drugs during your

pregnancy, make sure that your doctor knows that you are pregnant (or, ideally, planning to become pregnant) so that they can try to avoid prescribing drugs which are known to be potentially harmful to an unborn child. For some people, having a chronic condition means having to take extra medication to support the pregnancy e.g. changing from the regular dose of folic acid of 400mcg to 5mg per day.

If you are taking one of the drugs in the table below please discuss the medication before considering pregnancy. If you are taking one of the drugs in the table below, and fall pregnant accidentally or unexpectedly, please talk to your doctor as soon as possible it is important that you don't just stop taking the medication.

Types of medicines

ACE inhibitors e.g., enalapril, ramipril, perindopril	ACE (Angiotensin-converting enzyme) inhibitors may be used to treat high blood pressure and congestive heart failure. Women are normally advised to stop taking these when planning a pregnancy due to the risk of birth defects.
Statins e.g., simvastatin, atorvastatin	Statins are prescribed to lower cholesterol and so reduce the risk of a heart attack or stroke. Women are normally advised to stop taking these at least 3 months before conception occurs.

Anti-epilepsy Drugs (AED)

Most AEDs are teratogenic, although the risk is reduced when only one drug is used. Some AEDs are less likely to cause problems than others, but the risk to the unborn baby needs to be balanced with the risk of seizures in the mother which could harm both the mother and the baby. Women with epilepsy should therefore have a chance to discuss the choice of drugs and doses with a specialist when planning their pregnancy. Most women with epilepsy have normal, healthy babies and the risk of birth defects is low if the baby is not exposed to AEDs around the time of conception.[1]

Pregnant women who are on AEDs are usually recommended to take 5mg folic acid per day, before becoming pregnant and throughout the first trimester, as it is thought that this may reduce the chances of a birth defect.[1]

Valproate medicines must not be used in women of childbearing potential unless the Pregnancy Prevention Programme is in place.

Antibiotics

Many antibiotics including penicillins, erythromycin, and cephalosporins, are thought to be safe in pregnancy, but some are associated with problems:

· Trimethoprim interferes with folate metabolism and so should not be prescribed in the first trimester.

· Tetracycline can cause a yellow staining of the teeth and reduces growth of long bones.

· Aminoglycosides such as gentamicin can cause deafness.

Warfarin

This is a blood thinning drug used to treat or prevent blood clots. It is not usually prescribed in pregnancy because it can cause 'fetal warfarin syndrome' which is associated with a range of physical and sometimes mental problems.

Lithium

Lithium may be used in the management of bipolar disorder. If used in pregnancy, especially in the first trimester, it can sometimes cause an abnormality of the heart valves. This needs to be balanced against the risks to the mother of a relapse if she stops taking Lithium. If she is advised to stop Lithium, or to switch to a different drug, this needs to be managed gradually. Women on lithium will usually be offered a high-resolution ultrasound scan and fetal echocardiography at 18-20 weeks of pregnancy to check for heart defects.

Other drugs

Other drugs for chronic conditions include medications for diabetes, liver disease, heart conditions, overactive thyroid, and mental health conditions.

Please speak to your doctor or health care team if you take routine or regular medications outside of pregnancy. In the meantime, information can be sought from the factsheets on BUMPS - best use of medicine in pregnancy.

Timing of drugs

The risk of harm coming to a baby due to medication is greatest in weeks 3-11 after conception (from week 1 to 9 of your pregnancy) because this is when major organs are developing. During the second and third trimesters, drugs can affect the growth or functional development of the fetus, or they can have toxic effects on fetal tissues. Drugs given shortly before term or during labour can have adverse effects on labour or on the neonate after delivery.

What drugs are known to have a risk of causing birth defects?

To date, only 30 drugs have been shown to be teratogenic (harmful to an unborn baby).Here is a good resource and a place to start when learning about drugs in pregnancy. There are also other sources, listed below, which cover different stages of pregnancy.

If you are planning a pregnancy and are taking any of these drugs, you can discuss treatment options with your specialist, as a different drug or dose may be safer than your current one. If you have already become pregnant, speak to a specialist as soon as possible as there may be risks to stopping your medication abruptly which need to be balanced against the risk of birth defects if you continue to take them. Furthermore, if you are taking one of these medications, you should be using appropriate contraception this link provides information about suitable contraception.

Are there risks with non-prescription drugs or herbal remedies?

Over-the-counter medicines should be discussed with the pharmacist before purchase. The Patient Information leaflet (PIL) included in the packaging should state whether pregnant women are advised to avoid the drug. The information on the BUMPS website can be really helpful. UKTIS will discuss medication in pregnancy with medical professionals but not with families.

Aspirin (or any preparations containing it) at a dose to be used as a painkiller (600mg four times a day) is not recommended for pregnant women because it is associated with an increased risk of stillbirth, low birth weight, and possibly birth defects.[2] However, it is sometimes prescribed in a low dose (75-150mg per day) to reduce the chance of miscarriage or pre-eclampsia, amongst other reasons.

Herbal medicines have generally not been tested for safety, but they are subject to the "Yellow Card" reporting system in the same way as prescription drugs. You should check with your midwife, pharmacist, or doctor before taking any herbal medicines but may be advised to avoid them based on lack of evidence of safety because of variation in products.

Vitamin A intake needs to be limited in pregnancy so additional supplements should be avoided.

Where do I find information on the drugs that I currently take?

If you have a medical condition that is being managed by a consultant or other specialist, they will probably be best placed to talk to you about your current medication.

Your GP may look in the BNF (British National Formulary the main book on drugs that they will have in the surgery), but this information may be limited. It would probably be better to use a specialist information source such as UKTIS which has information available here.

There is a consortium set up by the Medicines Health Regulatory Authority (MHRA) working with many other organisations both within the NHS and third sector to provide evidence-based information on drugs in pregnancy (Safer Medicines in Pregnancy and Breastfeeding Consortium).

Specialist information sources online:

 Guidance Use of medicines in pregnancy and breastfeeding MHRA Jan 2021

 BUMPS: best use of medicines in pregnancy

 Mother to Baby

There are also specialist books, but these are generally very expensive and your healthcare team is usually a free and reliable resource. See "Further reading".

For most common medical conditions there might also be support groups with a webpage and sometimes a helpline.

Finally, some medication taken during pregnancy, including labour, can affect breastfeeding decisions. We provide a quick guide here.

References

[1] RCOG Greentop Guide no 66 "Epilepsy in Pregnancy", June 2016 2. Department of Health, UK Chief Medical Officer's Alcohol Guidelines Review, January 2016

[2] Collins E. Maternal and fetal effects of acetaminophen and salicylates in pregnancy, Obstet. Gynecol.

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Further reading

- Ainsworth SB (2014) Neonatal Formulary: Drug Use in Pregnancy and the First Year of Life 7th Edition Wiley Blackwell and BMJ Books
- Al-Zidan RN (2020) Drugs in Pregnancy: A Handbook for Pharmacists and Physicians 1st Edition
- Briggs G et al. (2021) Briggs Drugs in Pregnancy and Lactation: A Reference Guide to Fetal and Neonatal Risk 12th Edition. Lippincott Williams and Wilkins
- Jones W (2018) Breastfeeding and Medication. Routledge
- Priest J, Attawell K (1998) Drugs in Conception, Pregnancy and Childbirth Paperback
- Schaefer C, Peters PWJ, Miller RK (Editors) (2014) Drugs in Breastfeeding and Lactation 3rd Edition. Academic Press