Drugs, medication and birth defects
Summary

- Drugs that can cause birth defects are said to be ‘teratogenic drugs’.
- Medical science cannot always predict how exposure to a teratogenic drug will affect a developing fetus.
- It can be dangerous for a pregnant woman to stop taking prescription drugs if she has a medical condition or becomes ill. Without treatment, the health and welfare of both the mother and her unborn baby could be at risk.

Certain drugs such as alcohol, some illegal drugs, and some prescription and over-the-counter medications are known to cause birth defects if taken during pregnancy. Drugs that can cause birth defects are called ‘teratogens’. A teratogen is a substance that interferes with the normal development of a fetus.

Risk factors for birth defects

Medical science cannot always predict how exposure to a teratogenic drug will affect a fetus. The potential for harm depends on a range of factors including:

- the type of drug
- the size of the dose
- how often it’s taken
- the stage of fetal development (gestational age) at the time of drug exposure
- the individual response of the fetus to the drug
- other factors, such as maternal diet or illness.

Birth defects happen regardless of medication or drug use

The risk of a birth defect for any baby is about four per cent, regardless of the circumstances during pregnancy. This means that even a woman who strictly avoids drugs while pregnant may still have a baby with a birth defect. Discuss any concerns with your doctor, pharmacist or midwife.

Teratogenic drugs and birth defects

Each of the following drugs or drug groups may cause birth defects in a developing fetus:

- ACE (angiotensin converting enzyme) inhibitors
- angiotensin II antagonist
- isotretinoin (an acne drug)
- alcohol
- cocaine
- high doses of vitamin A
- lithium
- male hormones
- some antibiotics
- some anticonvulsant medications
- some cancer-fighting medications
- some drugs that treat certain rheumatic conditions
- some thyroid medications
- thalidomide
- the blood-thinning drug warfarin
- the hormone diethylstilbestrol (DES).

This list is not complete. For example, the teratogenic effects of illegal drugs (such as cannabis or amphetamines) are not clear because of the lack of medical studies.

Pregnancy risk classification for medicines

Medicines in Australia are given a risk category by the Australian Drug Evaluation Committee for drugs used in pregnancy according to their documented safety information. This category applies only to recommended doses.

The classifications include:

- A – Drugs that have been taken by a large number of pregnant women without any proven increase risk of birth defect.
- B – Drugs that have been taken by only a limited number of pregnant women. Human data is lacking and they are further categorised based on available data from animal studies.
- B1 – animal studies have not shown any increased risk.
- B2 – animal studies are limited, but there does not seem to be any increased risk.
- B3 – animal studies show an increased risk, but it is not clear if this risk applies to humans.
Some women must take medications during pregnancy

About eight per cent of all pregnant women need to take ongoing medication for an existing health problem. For example, chronic health conditions such as epilepsy, high blood pressure, diabetes, thyroid conditions and asthma require management with medications.

For some pregnant women, illness (such as an acute respiratory infection like pneumonia) or pregnancy complications (such as pre-eclampsia) also require medication.

It can be dangerous if a woman who needs medication stops taking it

It can be dangerous for a pregnant woman to avoid prescription drugs if she has a medical condition or becomes ill. For example:

- If a pregnant woman who has asthma stops taking her medication, there is a risk of slowing the growth of her unborn baby.
- If a pregnant woman who has epilepsy stops her anti-epileptic medications, she may have an increased risk of having seizures and complications to her pregnancy and unborn baby.
- Poorly managed maternal diabetes increases the health risk for the unborn baby.

Without treatment with prescribed drugs, the health and welfare of both the mother and her unborn baby could be at increased risk. Discuss any concerns with your doctor or midwife.

General recommendations

Be guided by your doctor or midwife, but general recommendations include:

- Give your doctor or midwife a list of all drugs you take or have recently taken, including prescription and over-the-counter medicines, nutrition supplements and complementary therapies (such as herbal medicine). Tell your doctor or midwife if you smoke, drink alcohol or take illegal drugs, even if you only take them occasionally or socially.
- Remember that non-prescription drugs and complementary medicines can be harmful to the unborn baby.
- Ask your doctor or midwife for advice or seek counselling if you need help to stop taking alcohol or other drugs.
- If you take medication to manage a chronic illness, don’t stop or alter the dose without the knowledge and consent of your doctor.
- If you are concerned about your long-term medication, the doctor may, in some cases, be able to prescribe a similar medication that does not have any known effects on the fetus.
- Take folic acid supplements prior to conception and during the first trimester as directed by your doctor. Folic acid is known to reduce the risk of neural tube defects in the developing baby.

Where to get help

- Your doctor
- Midwife
- Obstetrician
- Pharmacist
- Drug and alcohol counsellor
- DirectLine Tel. 1800 888 236 – for counselling and referral
- The Royal Women’s Hospital Drug Information Centre Tel. (03) 9344 2277
- Australian Drug Foundation Tel. 1300 85 85 84

Things to remember

- Drugs that can cause birth defects are said to be ‘teratogenic drugs’.
- Medical science cannot always predict how exposure to a teratogenic drug will affect a developing fetus.
- It can be dangerous for a pregnant woman to stop taking prescription drugs if she has a medical condition or becomes ill. Without treatment, the health and welfare of both the mother and her unborn baby could be at risk.

References

- Alcohol & drugs during pregnancy [online], The Royal Women’s Hospital Melbourne. More information here.

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Birth defects

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Birth defects explained

The cause of birth defects is often unknown, speak to your GP if you are at increased risk of having a baby with a congenital anomaly.

Disease clusters

Disease clusters are rare but can cause community concern about the possible effects of exposure to environmental hazards.

Birth defect conditions

Abdominal birth defects

During fetal development, the diaphragm or abdominal wall may fail to properly fuse, allowing the abdominal organs to protrude.

Ambiguous genitalia

The causes of ambiguous genitalia include genetic variations, hormonal imbalances and malformations of the fetal tissues that are supposed to evolve into genitals.

Autism spectrum disorder (ASD)

ASD is a complex disorder that affects a person's ability to interact with the world around them.

Central nervous system birth defects

Folic acid taken before conception, and during at least the first four weeks of pregnancy, can prevent around seven out of 10 cases of neural tube defects.

Cleft palate and cleft lip

Most cleft palates and cleft lips can be repaired so that appearance and speech develop normally.

Congenital adrenal hyperplasia (CAH)

CAH is a rare genetic disorder, but it is well understood and treatment is readily available.

Cri du chat syndrome

Most children born with cri du chat syndrome have moderate intellectual disability, with varying degrees of speech delay and some health problems.

Developmental dysplasia of the hip (DDH)

Around 95 per cent of babies born with developmental dysplasia of the hip can be successfully treated.

Down syndrome

With the support and opportunities available to them today, most people with Down syndrome are able to achieve and participate as valued members of their community.

Dwarfism

Dwarfism refers to a group of conditions characterised by shorter than normal skeletal growth.

Fetal alcohol spectrum disorder (FASD)

The World Health Organization recommends that pregnant women should avoid alcohol.

Fragile X syndrome

The facts about fragile X syndrome are complicated, and parents and family members are invited to ask their doctor to refer them to a genetics clinic.

Haemophilia

All children with severe haemophilia are given preventative treatment with infusions of blood products before they have a bleed.

Heart abnormality birth defects

Some congenital heart defects are mild and cause no significant disturbance to the way the heart functions.

Kabuki syndrome

Kabuki syndrome affects males and females equally and there is no cure.

Neurofibromatosis

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Neurofibromatosis is caused by faulty genes, which may be inherited or have spontaneously mutated at conception.

Noonan syndrome
Noonan syndrome is a genetic condition that usually includes heart abnormalities and characteristic facial features.

Phenylketonuria (PKU)
PKU is an inherited disorder that prevents the normal breakdown of a protein found in some foods.

Prader-Willi syndrome
A feature of Prader-Willi syndrome is the child's excessive appetite, which often leads to obesity.

Spina bifida
Folate can prevent up to 70 per cent of spina bifida cases if taken daily for one month before conception and during the first three months of pregnancy.

Syringomyelia
Syringomyelia is the growth of a cyst in the spinal cord that may result in paraplegia or quadriplegia if not treated.

Tay-Sachs disease
Tay-Sachs disease is a serious genetic disorder common in Ashkenazi Jews and French-Canadians.

Thalassaemia
Thalassaemia is an inherited blood disorder that can cause anaemia or death if not treated.

Trisomy disorders
Children affected by trisomy usually have a range of birth defects, including delayed development and intellectual disabilities.

Urinary system birth defects
Common birth defects of the urinary system include hypospadias, obstructive defects of the renal pelvis and renal agenesis.

Williams syndrome
Williams syndrome often goes undiagnosed, which means that some people with the disorder fail to get the support and treatment they need until later in life.

Birth defect risks

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Rubella
Rubella is a mild illness for most people, but very dangerous for pregnant women and their babies.

Toxoplasmosis
Problems only occur if a woman becomes infected with parasites that cause toxoplasmosis for the first time while pregnant.

Birth defects screening and protection

Egg freezing
You can freeze your eggs for medical reasons or for reasons that are more to do with your life circumstances.

Folate for pregnant women
Even women who aren't planning to have a baby should increase their folate intake in case of unplanned pregnancy.

Genetic services in Victoria
Genetic services can help people who are affected by, or who are at risk of, inherited conditions or birth defects, to make informed choices about their healthcare.

Immunisation and pregnancy
Immunisation can protect a woman and her unborn baby against many infectious diseases.

Newborn bloodspot screening
Every newborn baby in Australia is offered a newborn bloodspot screening test to identify those at risk of rare, but serious, medical conditions.

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- **Pregnancy tests – chorionic villus sampling**

  Chorionic villus sampling (CVS) is a pregnancy test that checks the baby for some abnormalities...

- **Pregnancy tests - maternal serum screening**

  Maternal serum screening can indicate increased risk of abnormalities in the unborn child, but is not a diagnosis...

- **Pregnancy tests - ultrasound**

  Ultrasound is used during pregnancy to check the baby’s development and to help pick up any abnormalities...

### Related Information

- **Toxoplasmosis**

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- **Genetic services in Victoria**

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### Related information on other websites

- National Prescribing Service - Medicine Update.
- National Prescription Service - Medicine Line.

### Support Groups

- Family Drug Help

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