Azathioprine | 6-mercaptopurine (Imuran® | Purinethol®)

This sheet is about exposure to azathioprine / 6-mercaptopurine (6-MP) in pregnancy and while breastfeeding. This information is based on published research studies. It should not take the place of medical care and advice from your healthcare providers.

What is azathioprine and 6-mercaptopurine (6-MP)?

Azathioprine (Imuran®) and 6-mercaptopurine (6-MP, Purinethol®) are medications that lower the body's immune system (immunosuppressants). Azathioprine is changed into 6-MP after it is absorbed by the body. These medications have been used to treat autoimmune conditions such as lupus, rheumatoid arthritis, Crohn's disease, and ulcerative colitis. Azathioprine is also used to help prevent the body from rejecting a transplanted organ. 6-MP is also used to treat some types of cancer.

MotherToBaby has fact sheets on lupus https://mothertobaby.org/fact-sheets/lupus-pregnancy/, rheumatoid arthritis https://mothertobaby.org/fact-sheets/rheumatoid-arthritis/, and inflammatory bowel disease https://mothertobaby.org/fact-sheets/inflammatory-bowel-disease-pregnancy/.

Sometimes when women find out they are pregnant, they think about changing how they take their medication or stopping it altogether. However, it is important to talk with your healthcare providers before making any changes to how you take your medication. Your healthcare providers can talk with you about the benefits of treating your condition and the risks of untreated illness during pregnancy.

The product label for azathioprine states that azathioprine may increase the chance of a liver condition called intrahepatic cholestasis of pregnancy, which usually causes severe itching later in pregnancy. If this condition develops, the medication may need to be stopped. Several medical organizations consider azathioprine and 6-MP acceptable to use during pregnancy when they are needed to treat the underlying condition. For many women, the benefits of staying on treatment outweigh the possible risks. Talk with your healthcare providers about your treatment options and what is best for you and your pregnancy.

I take azathioprine / 6-MP. Can it make it harder for me to get pregnant?

It is not known if taking azathioprine or 6-MP can make it harder to get pregnant.

Does taking azathioprine / 6-MP increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Taking azathioprine / 6-MP is not expected to increase the chance of miscarriage.

Does taking azathioprine / 6-MP increase the chance of birth defects?

Birth defects can happen in any pregnancy for different reasons. Out of all babies born each year, about 3 out of 100 (3%) will have a birth defect. We look at published data to try to understand if a certain exposure, like azathioprine / 6-MP, might increase the chance of birth defects in pregnancy.

Azathioprine and 6-MP have been studied in many pregnancies. Overall, the studies have not found an increased chance of birth defects. Two large studies that followed women throughout pregnancy also did not find a higher chance of birth defects with these medications.

A few studies reported a slightly higher chance of birth defects. However, the rates were similar to those seen in women with the same health conditions who were not taking these medications. This makes it hard to know whether any increased chance was related to the medication, the underlying condition, or other factors. No specific pattern of birth defects was found, which is reassuring.

Does taking azathioprine / 6-MP in pregnancy increase the chance of other pregnancy-related problems?

Some studies on azathioprine and 6-MP have reported higher rates of preterm delivery (birth before week 37 of pregnancy) or low birth weight (weighing less than 5 pounds, 8 ounces [2,500 grams] at birth). The conditions these medications are used to treat can also increase the chance of these outcomes. This means it is not clear if the outcomes are due to the medical condition being treated, the medication, or other factors.

Azathioprine and 6-MP have been linked to a higher chance of intrahepatic cholestasis of pregnancy (ICP), a liver condition that usually develops later in pregnancy and causes severe itching, especially on the palms of the hands and soles of the feet. If you develop new itching during pregnancy, especially on your hands or feet, contact your healthcare provider right away.

There have also been reports of temporary changes in blood cell counts in some babies exposed to azathioprine or 6-MP during pregnancy. This appears to be more likely with higher doses, such as those used to treat cancer or prevent organ transplant rejection, or when the person taking the medication also has low white blood cell counts. Be sure your healthcare providers know you are taking azathioprine or 6-MP so your baby can be checked after birth if needed.

Does taking azathioprine / 6-MP affect future behavior or learning for the child?

Studies have not found that azathioprine / 6-MP increases the chance of behavior or learning issues for the child. A large U.S. pregnancy study checked development at 12, 24, 36, and 48 months of age and found no differences in developmental milestones compared to children who were not exposed. Another study from Denmark found no increased risk of autism spectrum disorder (ASD) or attention deficit hyperactivity disorder (ADHD) in children exposed to thiopurines (azathioprine and/or 6-MP) during pregnancy. However, long-term data beyond early childhood remain limited.

Breastfeeding while taking azathioprine / 6-MP:

Small amounts of azathioprine and 6-MP pass into breast milk. The highest levels in breast milk occur about 1–2 hours after taking a dose, and the amount is very low by about 4 hours after a dose.

Studies of more than 250 breastfed babies whose mothers took these medications found normal blood counts, normal growth, and no increased risk of infections. Some children were followed for up to 6 years. If you notice unusual symptoms in your baby (such as increased bruising, frequent infections, or poor feeding) contact your baby's healthcare provider.

The product label for azathioprine recommends that women who are breastfeeding do not use this medication because of concerns based on animal studies. However, several medical organizations consider azathioprine 6-MP compatible with breastfeeding. For many women, the benefits of continuing treatment while breastfeeding may outweigh the possible risks. Be sure to talk with your healthcare provider about all your breastfeeding questions.

If a man takes azathioprine / 6-MP, could it affect fertility or increase the chance of birth defects?

Taking azathioprine or 6-MP has not been shown to affect a man's fertility (ability to make healthy sperm) or increase the chance of birth defects. A large study that combined the results of many studies did not find a higher chance of birth defects or other problems at birth in babies fathered by men taking these medications. In general, exposures that men have are less likely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

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