

Cough and Cold Medications in Pregnancy and Lactation

Drug or Drug Class	Pregnancy	Lactation
Decongestants	Pseudoephedrine , in the lowest dose and shortest duration possible is considered the decongestant of choice. However it may be prudent to avoid its use in the first trimester of pregnancy. Oxymetazoline and xylometazoline can be considered when used at appropriate doses for short durations.	Systemic decongestants are best avoided if breastmilk production is poor or marginal. Oxymetazoline and xylometazoline are considered drugs of choice.
Antihistamines	The first generation antihistamines, especially chlorpheniramine , are preferred. If not tolerated or effective, second generation agents such as loratadine can be recommended.	Due to possible adverse effects on the infant from first generation antihistamines, second generation agents are preferred in lactating mothers.
Antitussives – Codeine	Codeine is best avoided during pregnancy.	Avoid or limit codeine use in lactation due to risk of infant toxicity.
Antitussives - Dextromethorphan	Dextromethorphan is the preferred antitussive in both pregnancy and lactation. Consider lack of evidence of efficacy.	
Expectorant	Guaifenesin is considered safe in pregnancy and lactation. Consider lack of evidence of efficacy.	
Analgesics – Acetaminophen	Acetaminophen is considered the analgesic/antipyretic of choice in both pregnancy and breastfeeding.	
Analgesics – ASA and NSAIDs (naproxen and ibuprofen)	ASA and NSAIDs are considered compatible with pregnancy in the first and second trimester, but should be avoided in the third trimester . Low-dose ASA is considered to pose lower risk during pregnancy and breastfeeding.	Non-aspirin NSAIDs are generally considered compatible during breastfeeding and ibuprofen is the NSAID of choice due to greatest safety data. Low-dose ASA is considered to pose lower risk during pregnancy and breastfeeding.
Lozenges	Medicated throat lozenges are considered safe in pregnancy and breastfeeding.	
Herbals for Cough and Cold	Echinacea and ginseng (all forms) should be avoided during pregnancy and breastfeeding. Ascorbic acid (vitamin C) can be used as supplements for cold and flu prevention during pregnancy and lactation as long as the upper limit is not exceeded; 2000mg daily if the mother is over the age of 19 and 1800mg daily if the mother is 18 years old or younger. Zinc lozenges can be taken as long as the total daily intake does not exceed 40mg for women over the age of 19 and 34mg for women who are 18 years old or younger.	

A survey of pregnant women showed that 62.8% used over-the-counter (OTC) medications at some point during their pregnancy.¹ Pregnant and lactating women may come to a community pharmacy seeking relief for their cold symptoms. Pharmacists need to be able to provide them with accurate information, if available, regarding use of OTC cough and cold products so that they can make an informed decision about whether or not to take a particular product. Pregnant and lactating women should be advised to first try non-pharmacological treatments such as increased hydration, saline nasal spray, a humidifier, and hard candy.²

In general, it is best to limit or avoid drug therapy during pregnancy, especially during the first trimester. It is recommended to avoid extended release or long-acting formulations, and products that contain alcohol.² In addition, it is a good idea to choose a cough and cold product with only one active ingredient. One must also keep in mind that no drug is 100% safe for use in pregnancy, and the risks to the fetus vs. benefits (questionable for many agents) of using cough and cold medication must always be carefully weighed.

Breast milk is the most complete nutrition an infant can receive, and provides many health benefits both short and long term. Ideally a mother should avoid using any medications while she is breastfeeding; however this is not always feasible. As with drug use in pregnancy, no drug can be guaranteed 100% safe to use while breastfeeding and one must always weigh the risks to the infant vs. benefits of using the drug. Most drugs are likely safe in breastfeeding mothers, and the benefit of continued breastfeeding is likely to outweigh the risk of exposure to drugs.³ The age and health of the infant must also be taken into account; medications should be used cautiously by mothers nursing premature and/or unstable infants. Older, more stable infants can metabolize and clear medications more easily.³ Drugs which can be administered directly to infants are generally considered to pose less risk when used by breastfeeding mothers.

The following is a discussion of commonly used OTC cough and cold drugs. A brief mention on cough and cold natural health products is also included. The discussion assumes all non-pharmacologic options have been explored prior to resorting to pharmacologic therapies.

Decongestants

Pregnancy

Data is suggestive of a possible correlation between use of vasoconstrictors during first trimester and the development of gastroschisis (congenital fissure of the ventral abdominal wall) and hemifacial microsomia (underdevelopment of the lower half of one side of the face).^{4,5} Both of these anomalies are thought to be due to vascular disruption.⁵ However, other abnormalities thought to be associated with vascular disruption have not been attributed to first trimester use of pseudoephedrine and, therefore, maternal illness (fever, virus) needs to be considered as a possible cause.³ No other congenital anomalies have been associated with the use of pseudoephedrine in the first trimester.^{4,5} Phenylephrine has been associated with eye and ear malformation as well as congenital heart disease in first trimester use, but more studies⁶ are needed to confirm these findings.⁶

Human data are limited regarding the effect of decongestants on uterine blood flow during the third trimester; single dose studies of pseudoephedrine in women in third trimester found no significant changes to uterine blood flow or fetal blood pressure.⁶ Conversely, phenylephrine induces reduction of uterine blood flow at therapeutic doses.⁶ Of the oral decongestants, pseudoephedrine requires the highest dose to affect blood pressure (may be up to four times the therapeutic dose); therefore, pseudoephedrine is considered the best option if systemic decongestant use in pregnancy is being considered.⁴ Little information is available regarding the topical decongestants oxymetazoline and xylometazoline. No congenital anomalies have been associated with these agents.^{4,5} Based on the limited information, infrequent therapeutic doses of oxymetazoline and xylometazoline are not thought to cause problems, though use should be restricted in patients with borderline placental reserve (e.g. uncontrolled hypertension, anemia, diabetes mellitus, chronic lung diseases and heart disease).³

Lactation

Adverse effects of systemic decongestants on the nursing infant are unlikely,² though irritability has been reported occasionally in association with pseudoephedrine.⁷ Concern regarding systemic decongestants is the potential to reduce milk supply in the breastfeeding mother. Single 60mg doses of pseudoephedrine have reduced supply by over 20% within 24 hours of its use; phenylephrine is thought to act similarly, though no data exists.^{2,6,7} Therefore, these drugs need to be used with caution in mothers with poor or marginal milk supply,^{2,7} including those whose milk supply has not been established (which may take up to six to eight weeks postpartum)² and those in late-stage lactation.

No data exist concerning the use of topical decongestants in lactation. However, experts suggest oxymetazoline is unlikely to be harmful to the infant,^{7,8} and it is suggested by some as first line pharmacotherapy.⁷

Recommendation:

In pregnancy, pseudoephedrine, in the lowest dose and shortest duration possible is considered the decongestant of choice. However it may be prudent to avoid its use in the first trimester. Oxymetazoline and xylometazoline can be considered when used at appropriate doses for short durations. During lactation, systemic decongestants are best avoided when breastmilk production is poor or marginal. Oxymetazoline and xylometazoline are considered drugs of choice.

Antihistamines

Pregnancy

Human data suggests chlorpheniramine is not teratogenic.^{4,5} Some reports have associated brompheniramine and diphenhydramine with birth defects, though the majority of data have

found no association.^{4,5} Doxylamine succinate, which is also a component of Diclectin, has not been shown to increase the risk of congenital malformations.⁶ In general, first generation antihistamines are considered safe in pregnancy.^{3,4} Based on adequate human data, loratadine does not appear to increase risks when taken during pregnancy.^{3,4,5} While other second generation antihistamines, desloratadine, cetirizine and fexofenadine, are all active metabolites of drugs that have not been implicated as causing harm in pregnancy, human data with these agents is limited.^{3,4,5} Of the second generation antihistamines, loratadine and cetirizine are recommended;³ loratadine has the most human data.

Lactation

Milk levels of first generation antihistamines are low or unknown.^{2,7} Nonetheless, effects such as irritability, excessive crying and sleep disturbances in the infant have been reported² and there is a small chance these agents may reduce milk supply.⁷ Occasional small doses are not expected to be harmful.⁷ Second generation antihistamines also are not expected to be harmful during lactation^{2,7} and tend to be preferred because of lack of sedative effects.⁷ Human data are only available for loratadine and fexofenadine; these drugs are excreted into breastmilk in small amounts.²

Recommendation:

The first generation antihistamines, especially chlorpheniramine, are preferred in pregnancy; if these are not tolerated or effective, second generation agents such as loratadine can be recommended. Due to possible effects on the infant from first generation antihistamines, second generation agents are preferred in lactating mothers.

Antitussives

Pregnancy

A growing body of evidence suggests an increased risk of several congenital malformations associated with the use of codeine early in pregnancy.^{3,9} The drug may also pose problems if taken close to term: infants born to women in whom codeine was present at labour have developed respiratory depression,^{3,4,10} and infants born to mothers who took codeine close to term have experienced neonatal withdrawal.⁴ Dextromethorphan has not been associated with any problems when taken during pregnancy.^{3,4,5,10}

Lactation

Codeine is excreted into breastmilk in small amounts. Historically, it has been considered safe for use by lactating mothers when taken in doses of 240 mg or less per day.^{3,4,7} There is however, a subpopulation in whom ingestion of codeine while breastfeeding could be risky for the infant – women who are rapid metabolizers of CYP 2D6 convert codeine to larger amounts of morphine, which may be excreted in the breastmilk and be harmful to the baby.^{4,7} One case of infant death has been reported.⁴ Since CYP 2D6 status is usually unknown, it is best to avoid

codeine during lactation. If codeine is used, it should be limited to 1 or 2 days and discontinued immediately if any of the following symptoms develop in the infant: somnolence, poor feeding or grey skin.² Neonates in the first two weeks postpartum are particularly sensitive to the effects (apnea has been reported). No data exists on the transfer of dextromethorphan into breastmilk, although it is likely not a significant amount.^{2,8}

Recommendation:

Dextromethorphan is the preferred antitussive in both pregnancy and lactation. Codeine is best avoided during pregnancy. Avoid or limit codeine use in lactation due to the risk of rapid metabolism into morphine and risk of infant toxicity. Importantly, one also needs to consider what degree of benefit will be gained by the mother as the antitussive effect of codeine at low doses is unproven and dextromethorphan is a weak cough suppressant at best.^{11,12}

Expectorants

Pregnancy

Guaifenesin exposure during the first trimester was associated with inguinal hernia in one report,^{1,3} though others found no increased congenital defects.^{3,4,5,10}

Lactation

No studies of transfer to breastmilk are available,^{2,3,7} though no untoward effects in infants have been reported.²

Recommendation:

Despite the relative safety of guaifenesin in pregnancy and lactation, the drug has not demonstrated clear efficacy and is not recommended.^{11,12,13}

Analgesics/Antipyretics

Pregnancy

Acetaminophen has the greatest safety profile in pregnancy among OTC analgesics. It has not been shown to increase the risk of major malformations during first trimester use.^{6,11,14}

Recently, an association between long-term acetaminophen use, especially in late pregnancy, and development of ADHD in children has been suggested; causation has not been determined.^{6,9,15}

Acetylsalicylic acid (ASA) does not seem to increase the overall rate of birth defects, however use of ASA in the first trimester has been associated with a slightly increased risk of gastroschisis. Use of ASA in late pregnancy (28 weeks and onwards) can lead to premature closure of the ductus arteriosus and pulmonary hypertension.^{7,11,14} Late pregnancy use of ASA has also been associated with intracranial bleeding in premature infants but not full-term

newborns.¹¹ Low-dose ASA (75-300mg) has not been linked with any of the above concerns.^{7,11,14}

Over-the-counter NSAIDs are non-selective inhibitors of prostaglandin (PG) synthesis; naproxen and ibuprofen are the OTC NSAIDs available in Canada. NSAIDs may play a role in inhibition of ovulation and spontaneous abortion (SAB). The former is a concern for women planning pregnancy and the latter is a potential risk during pregnancy, especially around the time of conception. Like ASA, naproxen and ibuprofen use in late pregnancy (28 weeks and onwards) can lead to premature closure of the ductus arteriosus so use during this stage in pregnancy should be avoided.^{6,11,14}

Lactation:

Acetaminophen is minimally excreted into breastmilk and has not been associated with any adverse effects during breastfeeding.^{6,11} Only very small amounts of ASA are excreted into breastmilk, however the infant dose of its metabolites together, salicylic acid and salicylic acid, total an average of 9.4% of the maternal dose.^{2,8} Since it is implicated in Reye's syndrome in children, ASA should not be the first choice of analgesic/anti-inflammatory. The dose-dependent relationship between ASA and Reye's syndrome has not been determined,² but expert opinion suggests low-dose aspirin (75-162mg) poses less risk to infants.^{2,8} NSAIDs are generally considered compatible with breastfeeding. Naproxen holds more concern than ibuprofen due to its longer half-life and some reports of adverse effects such as drowsiness, vomiting and one report of prolonged bleeding in infants whose mothers took naproxen.²

Recommendation

Acetaminophen is considered the analgesic/antipyretic of choice in both pregnancy and breastfeeding. ASA and NSAIDs are considered compatible with pregnancy in the first and second trimester, but should be avoided in the third trimester. Non-aspirin NSAIDs are generally considered compatible during breastfeeding and ibuprofen is the NSAID of choice due to greatest safety data. Low-dose ASA is considered to pose lower risk during pregnancy and breastfeeding.

Lozenges

Pregnancy

Very limited studies are available on lozenges medicated with menthol, cetylpyridinium chloride, and eucalyptus oil, but they are likely minimally absorbed systemically^{2,7} and considered safe to use in pregnancy. Benzocaine is a more potent anesthetic, and has been better studied; there have been no associations found between the use of benzocaine-containing throat lozenges in pregnancy and congenital abnormalities.⁶

Lactation

Virtually no data exists on the use of lozenges in breastfeeding, however menthol, cetylpyridinium chloride and eucalyptus oil are considered safe to use.⁷ Benzocaine is also minimally absorbed and should be safe to use in breastfeeding.^{2,6}

Recommendation:

Medicated throat lozenges are considered safe in pregnancy and breastfeeding.

Herbal Products:

Pregnancy:

Products like echinacea, Cold-Fx (panax ginseng) and other forms of ginseng have been used to prevent or treat colds. They are purported to boost the immune system. There is conflicting evidence as to whether panax ginseng increases the risk of congenital abnormalities,^{6,16} but the consensus is to avoid the use of ginseng during pregnancy.^{16,17} Echinacea has not been shown to increase risks to the fetus in first trimester use and could potentially be used for a short duration (up to 7 days).^{6,16} However, since there is a limited amount of evidence and considering echinacea may not have a clinically meaningful impact on cold symptoms, it should still be used with caution.¹⁶

Lactation:

There is insufficient evidence to recommend the safe use of panax ginseng and echinacea during breastfeeding.^{6,16,17}

Recommendation

Echinacea and ginseng (all forms) should be avoided during pregnancy and breastfeeding.

Echinacea may be safe for very short periods of use (up to 7 days) during pregnancy.

Generally, ascorbic acid (vitamin C) can be used as a supplement for cold and flu prevention during pregnancy and lactation as long as the upper limit is not exceeded; 2000mg daily if the mother is over the age of 19 and 1800mg daily if the mother is 18 years old or younger.

Similarly zinc lozenges can be taken as long as the total daily intake does not exceed 40mg for women over the age of 19 and 34mg for women who are 18 years old or younger.^{16,18}

There are so many herbal products promoted for the purpose of treating or preventing colds and flus that it is not possible to discuss them all in this article. Overall, encourage patients to consult with a healthcare provider before trying any herbal product during pregnancy and lactation.

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