Treating constipation during pregnancy

Magan Trottier MSc Aida Erebara MD Pina Bozzo

Abstract

Question Many of my patients experience constipation during pregnancy, even after increasing dietary fibre and fluids. Are there any safe treatments I can recommend to them?

Answer Although the recommended first-line therapy for constipation includes increasing fibre, fluids, and exercise, these are sometimes ineffective. Therefore, laxatives such as bulk-forming agents, lubricant laxatives, stool softeners, osmotic laxatives, and stimulant laxatives might be considered. Although few of the various types of laxatives have been assessed for safety in pregnancy, they have minimal systemic absorption. Therefore, they are not expected to be associated with an increased risk of congenital anomalies. However, it is recommended that osmotic and stimulant laxatives be used only in the short term or occasionally to avoid dehydration or electrolyte imbalances in pregnant women.

Traiter la constipation durant la grossesse

Résumé

Question Beaucoup de mes patientes enceintes souffrent de constipation, même si elles consomment plus de fibres alimentaires et de liquides. Existe-t-il des traitements sécuritaires que je pourrais leur recommander?

Réponse Bien que le traitement de première intention recommandé pour la constipation préconise l'ajout de fibres, de liquides et d'activité physique, ces moyens demeurent parfois inefficaces. Par conséquent, on peut envisager des laxatifs comme les laxatifs de lest, les lubrifiants, les émollients, les laxatifs osmotiques et les laxatifs stimulants. L'innocuité durant la grossesse de bon nombre de ces types de produits n'a pas été étudiée, mais leur absorption systémique est minime. On ne s'attend donc pas à ce qu'ils soient associés à un risque accru d'anomalies congénitales. Cependant, il est recommandé de n'utiliser les laxatifs osmotiques ou stimulants qu'à court terme ou qu'à l'occasion pour éviter la déshydratation ou les déséquilibres des électrolytes chez les femmes enceintes.

It has been estimated that approximately 11% to 38% of pregnant women experience constipation,[1] which is generally described as infrequent bowel movements or difficult evacuation.[2] Pregnancy predisposes women to developing constipation owing to physiologic and anatomic changes in the gastrointestinal tract. For instance, rising progesterone levels during pregnancy and reduced motilin hormone levels lead to increases in bowel transit time.[2,3] Also, there is increased water absorption from the intestines, which causes stool to dry out. Decreased maternal activity and increased vitamin supplementation (eg, iron and calcium) can further contribute to constipation.[3] Later in pregnancy, an enlarging uterus might slow onward movement of feces.[4] Constipation can result in serious complications such as fecal impaction, but such complications are rare. It is important to note that constipation negatively affects patients' daily lives and is second only to nausea as the most common gastrointestinal complaint in pregnancy.[2,4]

Treatment

Many patients find relief from constipation with an increase in dietary fibre and fluids, as well as daily exercise. Probiotics that alter the colonic flora might also improve bowel function.[3] If these are ineffective, laxatives are the second line of therapy (**Table 1**).[2,5,6] In general, there are insufficient data on the use of laxatives in pregnancy; however, limited studies have been performed for specific laxatives, and the safety of others can be inferred from information about their systemic absorption (**Table 2**).[7-16]

Bulk-forming agents. Bulk-forming agents are not absorbed[4] or associated with increased risk of malformations[7]; therefore, they are considered safe for long-term use during pregnancy. However, they are not always effective and might be associated with unpleasant side effects such as gas, bloating, and cramping.[4]

Stool softeners. Docusate sodium has not been associated with adverse effects in pregnancy in a number of studies, and it is thus also considered safe

Table 1. Types of laxatives

TREATMENT	MECHANISM OF ACTION	EXAMPLES
Bulk-forming agents	Luminal water binding increases stool's bulk, making it easier to pass[5]	Psyllium, bran
Stool softeners	Stimulates net secretion of water, sodium, chloride, and potassium and inhibits net absorption of glucose and bicarbonate in the jejunum[6]	Docusate sodium or calcium
Lubricant laxatives	Decreases surface tension of bowel's liquid contents so that more liquid remains in the stool, thereby facilitating evacuation and decreasing straining[2]	Mineral oil
Osmotic laxatives	Increases osmolar tension, resulting in increased water collection, distention, peristalsis, and evacuation[2]	Salts (eg, sodium chloride, potassium chloride), magnesium sulfate or citrate, lactulose, sorbitol, polyethylene glycol
Stimulant laxatives	Acts locally to stimulate colonic motility and decrease water absorption from large intestine[5]	Bisacodyl, senna

Data from West et al,[2] Tack et al,[5] and Moriarty et al.[6]

Table 2. Studies examining safety in pregnancy and systemic absorption of commonly used laxatives

DRUG	TYPE OF STUDY	DETAILS	OUTCOMES
Psyllium	Surveillance	100 > N < 199 during first trimester	No increased risk of malformations[7]
Docusate sodium	Prospective	N = 116 anytime during pregnancy	No increased risk of malformations[8]
	Surveillance	N = 473 during first trimester	No increased risk of malformations (1/473 = 0.2%)[7]
	Surveillance	N = 319 during first trimester	No increased risk of malformations (3/319 = 0.9%)[9]
	Surveillance	N = 232 during first trimester	No increased risk of malformations (9/232 = 3.9%)[10]
Lactulose	Pharmacokinetics	N = 6 adults given lactulose	Systemic bioavailability < 3%[11]
Polyethylene glycol	Pharmacokinetics	N = 11 adults given polyethylene glycol	Not absorbed[12]
Bisacodyl	Pharmacokinetics	N = 12 adults given oral and rectal bisacodyl	Minimal absorption[13]
	Pharmacokinetics	N = 16 adults given bisacodyl suppository	Systemic bioavailability < 5%[14]
Senna	Case-control	N = 506 cases (260 during first trimester)	No increased risk of malformations (OR 0.8; 95% CI 0.4-1.4) or adverse pregnancy outcomes[15]
	Pharmacokinetics	N = 937 control (500 during first trimester); N = 10 adults given senna	Systemic bioavailability < 5%[16]

OR—odds ratio.
Data from Jick et al,[7] Heinonen et al,[8] Aselton et al,[9] Briggs et al,[10] Carulli et al,[11] Wilkinson,[12] Roth and Beschke,[13] Flig et al,[14] Acs et al,[15] and Krumbiegel and Schulz.[16]

to use.[7-10] There is one case report of maternal chronic use of docusate sodium throughout pregnancy, which was associated with symptomatic hypomagnesemia in the neonate.[17]

Lubricant laxatives. Mineral oil is poorly absorbed from the gastrointestinal tract[18] and does not appear to be associated with adverse effects.[19] There is controversy about whether prolonged use reduces the absorption of fat-soluble vitamins, although this appears to be a theoretical rather than actual risk.[20]

Osmotic laxatives. Lactulose and polyethylene glycol are poorly absorbed systemically.[11,12] Their use has not been associated with adverse effects; however, individuals might experience side effects such as flatulence and bloating.[3] Theoretically, prolonged use of osmotic laxatives might lead to electrolyte imbalances.[3]

Stimulant laxatives. Absorption of bisacodyl is minimal as it has poor bioavailability.[13,14] Senna does not appear to be associated with increased risk of malformations[15]

and is not readily absorbed systemically.[16] However, women might experience unpleasant side effects such as abdominal cramps with the use of stimulant laxatives.[2] Similar to osmotic laxatives, prolonged use might theoretically lead to electrolyte imbalances.[3]

Conclusion

The first line of therapy for constipation includes increasing dietary fibre and water intake and moderate amounts of daily exercise.[3] If these are ineffective, laxatives are the second line of therapy. Because most laxatives are not absorbed systemically, short-term use has not been, and is not expected to be, associated with an increased risk of malformations. However, as with the general population, it is recommended that osmotic and stimulant laxatives be used only in the short term or occasionally to avoid dehydration or electrolyte imbalances and the theoretical risk of "cathartic colon."[21]

Competing interests
None declared

References

1. Jewell DJ, Young G. Interventions for treating constipation in pregnancy. *Cochrane Database Syst Rev* 2001;(2):CD001142.
2. West L, Warren J, Cutts T. Diagnosis and management of irritable bowel syndrome, constipation, and diarrhea in pregnancy. *Gastroenterol Clin North Am* 1992;21(4):793-802.
3. Longo SA, Moore RC, Canzoneri BJ, Robichaux A. Gastrointestinal conditions during pregnancy. *Clin Colon Rectal Surg* 2010;23(2):80-9.
4. Cullen G, O'Donoghue D. Constipation and pregnancy. *Best Pract Res Clin Gastroenterol* 2007;21(5):807-18.
5. Tack J, Müller-Lissner S, Stanghellini V, Boeckxstaens G, Kamm MA, Simren M, et al. Diagnosis and treatment of chronic constipation—a European perspective. *Neurogastroenterol Motil* 2011;23(8):697-710. Epub 2011 May 24.
6. Moriarty KJ, Kelly MJ, Beetham R, Clark ML. Studies on the mechanism of action of dioctyl sodium sulphosuccinate in the human jejunum. *Gut* 1985;26(10):1008-13.
7. Jick H, Holmes LB, Hunter JR, Madsen S, Stergachis A. First-trimester drug use and congenital disorders. *JAMA* 1981;246(4):343-6.
8. Heinonen OP, Slone D, Shapiro S. *Birth defects and drugs in pregnancy: maternal drug exposure and congenital malformations.* Littleton, MA: Publishing Sciences Group; 1977. p. 442.
9. Aselton P, Jick H, Milunsky A, Hunter JR, Stergachis A. First-trimester drug use and congenital disorders. *Obstet Gynecol* 1985;65(4):451-5.
10. Briggs GG, Freeman RK, Yaffe SJ. *Drugs in pregnancy and lactation.* 9th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2011. p. 439.
11. Carulli N, Salvioli GF, Manenti F. Absorption of lactulose in man. *Digestion* 1972;6(3):139-45.
12. Wilkinson R. Polyethylene glycol 4000 as a continuously administered non-absorbable faecal marker for metabolic balance studies in human subjects. *Gut* 1971;12(8):654-60.
13. Roth W, Beschke K. Pharmacokinetics and laxative effect of bisacodyl following administration of various dosage forms [article in German]. *Arzneimittelforschung* 1988;38(4):570-4.
14. Flig E, Hermann TW, Zabel M. Is bisacodyl absorbed at all from suppositories in man? *Int J Pharm* 2000;196(1):11-20.
15. Acs N, Bánhidy F, Puhó EH, Czeizel AE. Senna treatment in pregnant women and congenital abnormalities in their offspring—a population-based case-control study. *Reprod Toxicol* 2009;28(1):100-4. Epub 2009 Feb 24.
16. Krumbiegel G, Schulz HU. Rhein and aloe-emodin kinetics from senna laxatives in man. *Pharmacology* 1993;47(Suppl 1):120-4.
17. Schindler AM. Isolated neonatal hypomagnesaemia associated with maternal overuse of stool softener. *Lancet* 1984;2(8406):822.
18. Hazardous Substances Data Bank [website]. *Mineral oil. CASRN: 8012-95-1.* Bethedsa, MD: U.S. National Library of Medicine; 2005. Available from: **http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB**. Accessed 2012 Jun 26.
19. Sharif F, Crushell E, O'Driscoll K, Bourke B. Liquid paraffin: a reappraisal of its role in the treatment of constipation. *Arch Dis Child* 2001;85(2):121-4.
20. Gal-Ezer S, Shaoul R. The safety of mineral oil in the treatment of constipation—a lesson from prolonged overdose. *Clin Pediatr* (Phila) 2006;45(9):856-8.
21. Joo JS, Ehrenpreis ED, Gonzalez L, Kaye M, Breno B, Wexner SD, et al. Alterations in colonic anatomy induced by chronic stimulant laxatives: the cathartic colon revisited. *J Clin Gastroenterol* 1998;26(4):283-6.

MOTHERISK Motherisk questions are prepared by the Motherisk Team at the Hospital for Sick Children in Toronto, Ont. **Ms Trottier** and **Dr Erebara** are counselors and **Ms Bozzo** is Assistant Director of the Motherisk Program.

Do you have questions about the effects of drugs, chemicals, radiation, or infections in women who are pregnant or breastfeeding? We invite you to submit them to the Motherisk Program by fax at 416 813-7562; they will be addressed in future **Motherisk Updates**.

Published **Motherisk Updates** are available on the *Canadian Family Physician* website (**www.cfp.ca**) and also on the Motherisk website (**www.motherisk.org**).