Proton Pump Inhibitors

Selected References:

- Banihani SA, Khasawneh FH. 2018. Effect of lansoprazole on human sperm motility, sperm viability, seminal nitric oxide production, and seminal calcium chelation. Res Pharm Sci.13:460-468.
- Dağlı U, Kalkan IH. 2017. Treatment of reflux disease during pregnancy and lactation. Turk J Gastroenterol. 2017 Dec;28(Suppl 1):S53-S56.
- Diav-Citrin O, et al. 2005. The safety of proton pump inhibitors in pregnancy: A multicenter prospective controlled trial. Aliment Pharmacol Ther; 21:269-75.
- Escoffier, J, Arnaud, B, Kaba, M, et al. 2020. Pantoprazole, a proton-pump inhibitor, impairs human sperm motility and capacitation in vitro. Andrology. 8: 1795– 1804.
- Hastie R et al. 2019. Proton Pump Inhibitors and Preeclampsia Risk Among 157 720 Women. Hypertension. 73(5):1097-1103. doi: 10.1161/HYPERTENSIONAHA.118.12547.
- Kallen BA. 2001. Use of omeprazole during pregnancy–no hazard demonstrated in 955 infants exposed during pregnancy. Eur J Obstet Gynecol Reprod Biol. 96(1):63-68.
- Mahadevan U, Kane S. 2006. American Gastroenterological Association Institute technical review on the use of gastrointestinal medications in pregnancy. Gastroenterology.131(1):283-331
- Majithia R, Johnson DA. 2012. Are proton pump inhibitors safe during pregnancy and lactation? Evidence to date. Drugs. 72(2):171-179.
- Marshall JK, et al. 1998. Omeprazole for refractory gastroesophageal reflux disease during pregnancy and lactation. Can J Gastroenterol. 12(3):225-7.
- Matok I, et al. 2012. The safety of fetal exposure to proton-pump inhibitors during pregnancy. Dig Dis Sci.. 57(3):699-705.
- Pasternak B, Hviid A. 2010. Use of proton pump inhibitors in early pregnancy and the risk of birth defects. N Egl J Med. 363(22): 2114-2123.
- Plante L, et al. 2004. Excretion of pantoprazole in human breast. J Reprod Med. 2004;49:825-7.
- Saito J, et al. 2020. Esomeprazole During Pregnancy and Lactation: Esomeprazole Levels in Maternal Serum, Cord Blood, Breast Milk, and the Infant's Serum. Breastfeed Med. 15(9):598-601. doi: 10.1089/bfm.2020.0175. Epub 2020 Jul 7.
- Ruigomez A, et al. 1999. Use of cimetidine, omeprazole, and ranitidine in pregnant women and pregnancy outcomes. Am J Epidemiol. 150(5):476-481.
- Thélin CS, Richter JE. 2020. Review article: the management of heartburn during pregnancy and lactation. Aliment Pharmacol Ther. 51(4):421-434. doi: 10.1111/apt.15611. Epub 2020 Jan 17. PMID: 31950535 Review.

Descargo de responsabilidad: las hojas informativas de MotherToBaby están destinadas a fines de información general y no deben reemplazar los consejos de su proveedor de atención médica. MotherToBaby es un servicio de la Organización sin fines de lucro de Especialistas en Información de Teratología (OTIS). Copyright de OTIS, 1 de julio de 2022.

Proton Pump Inhibitors

Selected References:

- Bloor M, et al. 2012. Tramadol in pregnancy and lactation. Int J Obstet Anesth 21:163-7.
- Bowie AC, et al. 2022. Prescribed opioid analgesics in early pregnancy and the risk of congenital anomalies: a population-based cohort study. CMAJ. 194(5):E152-E162.
- Ferrer E, et al. 2025. Tramadol during pregnancy: risk of adverse pregnancy outcome and major congenital anomalies. A comparative study in the EFEMERIS database. Pharmacoepidemiol Drug Saf. 34(4):e70143.
- Hartenstein S, et al. 2010. Neonatal abstinence syndrome (NAS) after intrauterine exposure to tramadol. J Perinat Med 38: 695–6.
- Ilett KF, et al. 2008. Use of a sparse sampling study design to assess transfer of tramadol and its o-desmethyl metabolite into transitional breast milk. Br J Clin Pharmacol. 65:661-6.
- Kallen B & Reis M. 2015. Use of tramadol in early pregnancy and congenital malformation risk. Reprod Toxicol. 23;58:246-251.
- Kaur Makkar J, et al. 2015. Comparison of analgesic efficacy of paracetamol and tramadol for pain relief in active labor. Clin Anesth. 27(2):159-63.
- Meyer FP, et al. 1997. Tramadol withdrawal in a neonate. Eur J Clin Pharmacol 53: 159–60.
- O'Mara K, et al. 2010. Treatment of neonatal withdrawal with clonidine after long-term, high-dose maternal use of tramadol. Ann Pharmacother 44: 1342–4.
- Sawaddiruk P. 2011. Tramadol hydrochloride/acetaminophen combination for the relief of acute pain. Drugs Today (Barc). 47(10):763-772.
- Schuckit MA. 2016. Treatment of opioid-use disorders. N Engl J.Med. 375:357–68
- Sørensen AMS, et al. 2022. Exposure to tramadol during early pregnancy and risk of spontaneous abortion or major congenital malformations. Obstet *Gynecol*.139(4):545-553.
- Subedi A. et al. 2013. Analgesic effects of intrathecal tramadol in patients undergoing caesarean section: a randomised, double-blind study. Int J Obstet Anesth. 22(4):316-21.
- U.S. Food & Drug Administration. Updated 10/2023. FDA drug safety communication: FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against the use in breastfeeding women. Available from URL: https://www.fda.gov/Drugs/DrugSafety/ucm549679.htm
- Willaschek C, et al. 2009. Tramadol withdrawal in a neonate after long-term analgesic treatment of the mother. Eur J Clin Pharmacol 65: 429–30.

¿Preguntas? Llame al 866.626.6847 | Texto 855.999.3525 | Correo electrónico o chat en MotherToBaby.org .

Descargo de responsabilidad: las hojas informativas de MotherToBaby están destinadas a fines de información general y no deben reemplazar los consejos de su proveedor de atención médica. MotherToBaby es un servicio de la Organización sin fines de lucro de Especialistas en Información de Teratología (OTIS). Copyright de OTIS, 1 de julio de 2022.

Proton Pump Inhibitors

Selected References:

- Butler DC, et al. 2014. Safety of dermatologic medications in pregnancy and lactation: Part II. Lactation. J Am Acad Dermatol, 70(3):417 e1-10.
- Carter TC, et al. 2008. Antifungal drugs and the risk of selected birth defects. Am J Obstet Gyn, 198:191- 193.
- Czeizel AE, et al. 2004. Population-based case-control teratologic study of topical miconazole. Congenit Anom, 44:41-45.
- Daniel S, et al. 2018. Vaginal antimycotics and the risk for spontaneous abortions. Am J Obstet Gynecol, 218(6):601.e1-601.e7.
- Giavini E, Menegola E. 2010. Are azole fungicides a teratogenic risk for human conceptus? Toxicol Lett, 198(2):106-111.
- Kazy Z, et al. 2005. The possible association between the combination of vaginal metronidazole and miconazole treatment and poly-syndactyly population-based case-control teratologic study. Reprod Toxicol, 20:89-94.
- Mendling W, Brasch J. 2012. Guidelines vulvovaginal candidosis (2010) of the German Society for Gynecology and Obstetrics, the Working Group for Infections and Infectimmunology in Gynecology and Obstetrics, the German Society of Dermatology, the Board of German Dermatologists and German speaking Mycological Society. Mycoses, Jul (55) Suppl 3:1-13.
- Murase JE, et al. 2014. Safety of dermatologic medications in pregnancy and lactation: Part 1 Pregnancy. J Am Acad Dermatol, 70(3):401.e1-14.
- Rotem R, et al. 2018. Risk of major congenital malformations following first-trimester exposure to vaginal azoles used for treating vulvovaginal candidiasis: a population-based retrospective cohort study. BJOG, 125(12):1550-1556.
- Soong D and Einarson A. 2009. Vaginal yeast infections during pregnancy. Can Fam Physician, 55(3):255-256.
- Stevens RE, et al. 2002. Bioavailability study of a 1200 mg miconazole nitrate vaginal ovule in healthy female adults. J Clin Pharmacol, 42(1):52-60.
- Tiboni GM et al. 2008. Teratogenic effects in mouse fetuses subjected to the concurrent in utero exposure to miconazole and metronidazole. Reprod Toxicol, 26(3-4):254-61.

¿Preguntas? Llame al 866.626.6847 | Texto 855.999.3525 | Correo electrónico o chat en MotherToBaby.org .

Descargo de responsabilidad: las hojas informativas de MotherToBaby están destinadas a fines de información general y no deben reemplazar los consejos de su proveedor de atención médica. MotherToBaby es un servicio de la Organización sin fines de lucro de Especialistas en Información de Teratología (OTIS). Copyright de OTIS, 1 de julio de 2022.

Proton Pump Inhibitors

Selected References

- Allen RW. 2012. Metoclopramide–a safe anti-emetic? [letter] S Afr Med J; 77: 219, 1990.
- Anderka M, et al. 2012. Medications used to treat nausea and vomiting of pregnancy and the risk of selected birth defects. Birth Defects Res (Part A); 94:22-30.
- Andersen AN, Tabor A. 1982. Prl, TSH, GH and LH responses to metoclopramide and breastfeeding in normal and hyperprolactinaemic women. Acta Endocrinol (Copenh); 100:177-83.
- Balikci A, Balibey H. 2012. [Postpartum depression due to use of metoclopramide: A case report]. Anatolian J Clin Invest; 6:258-60.
- Bérard A, et al. 2019. New Evidence for Concern Over the Risk of Birth Defects from Medications for Nausea and Vomiting of Pregnancy. J Clin Epidemiol; 116: 39-48.
- Berkovitch M, et al. 2002. Metoclopramide for nausea and vomiting of pregnancy: a prospective multicenter international study. Am J Perinatol; 19:311-6.
- Çekmez Y, et al. 2016. Does metroclopramide exposure alter endometrial receptivity and decrease pregnancy rates? J Matern Fetal Neonatal Med 29(16): 2703-6
- Dastgerdi E, et al. 2011. Effect of metoclopramide on increased milk production in mothers of preterm infants. Iran J Obstet Gynecol Infertil; 14:32-6.
- Fife S, et al. 2011. Metoclopramide to augment lactation, does it work? A randomized trial. J Matern Fetal Neonatal Med; 24:1317-20.
- Finnis WA, et al. 1976. Metoclopramide hydrochloride and galactorrhea. Can Med Assoc J; 115:845.
- Foong, S. C, et al. 2020. Oral galactagogues (natural therapies or drugs) for increasing breast milk production in mothers of non-hospitalised term infants. The Cochrane database of systematic reviews, 5(5), CD011505.
- Ingram J, et al. 2012. Metoclopramide or domperidone for increasing maternal breast milk output: a randomised controlled trial. Arch Dis Child Fetal Neonatal Ed; 97:F241-5.
- Kauppila A, et al. 1981. Metoclopramide increases prolactin release and milk secretion in puerperium without stimulating the secretion of thyrotropin and thyroid hormones. J Clin Endocrinol Metab; 52:436-9.
- Kauppila A, et al. 1983. Metoclopramide and breast feeding: transfer into milk and the newborn. Eur J Clin Pharmacol; 25:819-23.

- Kauppila A, et al. 1985. Metoclopramide and breast feeding: efficacy and anterior pituitary responses of the mother and the child. Eur J Obstet Gynecol Reprod Biol; 19:19-22.
- Lewis PJ, et al. 1980. Controlled trial of metoclopramide in the initiation of breast feeding. Br J Clin Pharmacol; 9:217-9.
- Matok I, et al. 2009. The Safety of Metoclopramide Use in the First Trimester of Pregnancy. N Engl J Med; 360:2528-2535.
- Milo R, et al. 1989. Acute intermittent porphyria in pregnancy. Obstet Gynecol 73:450-2.
- Nageotte MP, et al. 1996. Droperidol and diphenhydramine in the management of hyperemesis gravidarum. Am J Obstet Gynecol; 174:1801-1805.
- Negro, A, et al. 2021. Unrecognised pheochromocytoma in pregnancy discovered through metoclopramide-triggered hypertensive emergency. Blood pressure, 30(5), 322–326.
- Pasternak B, et al. 2013. Metoclopramide in pregnancy and risk of major congenital malformations and fetal death. JAMA. 310(15):1601-11.
- Sakha R, Behbahan AG. 2008. Training for perfect breastfeeding or metoclopramide: which one can promote lactation in nursing mothers? Breastfeed Med; 3:120-3.
- Shen Q, et al. 2021. Efficacy and safety of domperidone and metoclopramide in breastfeeding: A systematic review and meta-analysis. Breastfeed Med. 16:516–29.
- Shenhav S, et al. 1997. Acute intermittent porphyria precipitated by hyperemesis and metoclopramide treatment in pregnancy. Acta Obstet Gynecol Scand;76:484-5.
- Suarez, E. A et al. 2021. Ondansetron use in early pregnancy and the risk of miscarriage. Pharmacoepidemiology and drug safety, 30(2), 103–113.
- Sun, L, et al. 2021. Use of metoclopramide in the first trimester and risk of major congenital malformations: A systematic review and meta-analysis. PloS one, 16(9), e0257584.
- Tabrizi SO, et al. 2017. The effect of metoclopramide on prolactin levels in breastfeeding mothers: A systematic review and meta-analysis. Int J Pediatr (Mashhad). 5:5827–38.
- Winterfeld U, et al. 2012. Management of deficient lactation in Switzerland and Canada: A survey of midwives' current practices. Breastfeed Med. 2012;7:317–8.

Descargo de responsabilidad: las hojas informativas de MotherToBaby están destinadas a fines de información general y no deben reemplazar los consejos de su proveedor de atención médica. MotherToBaby es un servicio de la Organización sin fines de lucro de Especialistas en Información de Teratología (OTIS). Copyright de OTIS, 1 de julio de 2022.

Proton Pump Inhibitors

Selected References:

- American Academy of Dermatology. Indoor tanning. Available at https://www.aad.org/media/stats/prevention-and-care
- Bareford D, Cumberbatch M, Derrick Tovey L. 1984. Plasma discolouration due to sun-tanning aids. Vox Sanguinis, 46(3):180-182.
- Beaulieu RA, et al. 2013. Canthaxanthin retinopathy with visual loss: A case report and review. Case Rep Ophthalmol Med, Article ID 40901.
- European Commission. 2010. Scientific Committee on Consumer Safety. Opinion on dihydroxyacetone. Available at https://ec.europa.eu/health/sites/default/files/scientific_committees/consumer_safety/docs/sccs_o_048.pdf
- Lapunzina P. 1996. Ultraviolet light-related neural tube defects? Am J Med Genet, 67:106.
- Meadows M. 2003. Don't be in the dark about tanning. FDA Consumer Magazine, 37:6.
- United States Food and Drug Administration. 2018. Sunless tanners and bronzers. Available at https://www.fda.gov/Cosmetics/ProductsIngredients/Products/ucm134064.htm
- United States Food and Drug Administration. 2005. Tanning Pills. Available at https://www.fda.gov/cosmetics/cosmetic-products/tanning-pills
- Yourick JJ, et al. 2004. Fate of chemicals in skin after dermal application: Does the in vitro skin reservoir affect the estimate of systemic absorption? Toxicol Appl Pharmacol, 195:309-320.

Descargo de responsabilidad: las hojas informativas de MotherToBaby están destinadas a fines de información general y no deben reemplazar los consejos de su proveedor de atención médica. MotherToBaby es un servicio de la Organización sin fines de lucro de Especialistas en Información de Teratología (OTIS). Copyright de OTIS, 1 de julio de 2022.