Evidence-Based Practice Reports

Selection and Use of Galactogogues

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Abstract: Breastfeeding mothers are often concerned about an inadequate quantity of breast milk, designated as insufficient milk supply. Many breastfeeding mothers will attempt to increase the quantity of breast milk production by taking prescription drugs and/or herbs and foods called galactogogues. Galactogogues are defined simply as substances that promote lactation. The most common prescription galactogogues are domperidone, metoclopramide, metformin, and oxytocin. Many common herbals and foods have been traditionally used as galactogogues. These galactogogues will be reviewed; this information will allow health care professionals in all settings to provide consultative services to breastfeeding mothers. Breastfeeding mothers and supporters will find the information useful to determine if galactogogues are necessary, and if so, which galactogogues are appropriate for use. Treatment guidelines including benefits, doses, actions, and cautions are discussed.

Keywords: galactogogues; domperidone; metoclopramide; metformin; herbals; breastfeeding; lactation

Galactogogues may be considered for insufficient milk supply when nonpharmacologic interventions do not aid in increasing milk supply. Galactogogues typically increase prolactin levels and thus initiate the breast milk letdown reflex but also sometimes aid in breast milk ejection. Multiple mechanisms may come into play. Synthetic galactogogues include dopamine antagonists such as domperidone and metoclopramide; antipsychotics such as chlorpromazine, reserpine, sulpiride, trifluoperazine, and thioridazine; hormones such as oxytocin, growth hormone, and recombinant human prolactin; and miscellaneous agents such as metformin. Domperidone, metoclopramide, metformin, and oxytocin are the most commonly used synthetic galactogogues due to their relative efficacy and safety in breastfeeding women. Many herbals and foods are commonly used for their galactogogue properties. The list is quite extensive and includes alfalfa, almonds, anise, asparagus, barley, basil, beets, borage, caraway, carrots, chestnut fruit, cherries, chicken broth/soup/stock, chickpeas (garbanzo beans), coconut, coriander seeds, cumin, dandelion, dill, fennel, fenugreek, flax seeds, garlic, ginger, goat’s rue, green beans, hibiscus, hops, lemon balm, lentils, lettuce, malunggay (moringa), marshmallow root, millet, molasses (black strap), mung, mushrooms, nettle, oat straw (oats), papaya, peas, pumpkin, quinoa seeds, red clover, red raspberry, rice, sage, seaweed soup, sesame seeds, spinach, sunflower seeds, sweet potatoes, thistles, turmeric, and vervain. Domperidone and metoclopramide are unique antagonists of the dopamine D2 receptor site (dopamine causes a decrease in prolactin levels), which are used off-label to treat hypoprolactinemia.

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the pituitary within an hour and leads to sustained, increased plasma levels soon after; even in nonlactating women, levels rise almost 10-fold. Doses are usually 10 to 20 mg 4 times a day or 30 mg 3 times a day. Most breastfeeding mothers take the drug for 3 to 8 weeks or as long as needed to maintain supply. 5,6 A 1-page handout, including withdrawal algorithms, is available at www.nicebreastfeeding.com under “Counseling Tips.” An issue that limits its use is that domperidone currently does not have prescription status in the United States. In addition, despite having Orphan Drug Status designated by the FDA for treatment of insufficient milk supply, the FDA has tried to limit its use as an off-label drug to increase milk supply due to apparently unrelated cardiac issues in a different patient population. 8

Unlike metoclopramide, domperidone does not cross the blood–brain barrier and does not tend to have adverse effects such as drowsiness or depression and, especially, tardive dyskinesia. Metoclopramide is dosed at 10 mg 3 to 4 times a day for 1 week and then gradually decreased over the next week. Milk supply usually increases within several days. Mothers must empty and/or pump breasts 6 to 8 times a day and make sure that the breasts are emptied completely by nursing the baby or by using a breast pump, even at night. 9

Another drug used off-label as a galactagogue is metformin. Its action is another drug used off-label as a galactagogue is metformin. Its action is to treat insufficient milk supply, this biologic apparently was efficacious for both mothers of preterm infants with lactation insufficiency and mothers with prolactin deficiency. The authors recommended that long-term safety and efficacy studies be conducted. 3

Not all mothers have access to off-label drugs nor desire to take prescription drugs to increase milk supply. Galactagogue herbs and foods are regulated by the FDA as foods and not medicines, as long as only “affects body function” claims and not “medical” claims are made. Because there is easier access to these types of galactogogues, the necessity exists for consumers to be well informed and have a real need for treatment before taking any herbal. Most knowledge for herbal use comes from the systematic collection of data in Germany by the German Commission E Monographs. 13 Several published texts provide useful herbal and food galactogogue information, including the following: The Nursing Mother’s Herbal, 14 Medications and Mothers’ Milk, 11 Nonprescription Drugs for the Breastfeeding Mother, 5 and The Galactagogue Recipe Book. 4

The following represents a list of some of the more commonly used herbal and food galactogogues, along with typical dosing for more inclusive information, see the articles, “Common Herbs and Foods Used as Galactogogues” 16 and “Medications and Breastfeeding: Current Concepts,” 17 available at www.nicebreastfeeding.com under “Counseling Tips”:

Alfalfa (Medicago sativa): Up to 60 g daily (1-2 capsules 4 times a day) Anise (Anisi fructus): 3.5 to 7 g as tincture or tea, 5 to 6 times a day Barley (Hordeum vulgare): 15 g of barley extract, 1 cup to 2 cups of tea daily; 1 bottle of beer daily Blessed Thistle (Cnicus benedictus berba): Up to 2 g, in capsule form, daily Caraway (Carum carvi): 1.5 to 6 g daily as tincture, tea, or essential oil Chaste Tree Fruit, Chasteberry, Vitex (Agni casti fructus): 30 to 40 mg daily as an alcoholic extract (50% to 70% alcohol) Coriander, Cilantro (Coriander fructus): 3 g daily as tea Dandelion (Taraxaci berba): 5 g, in capsule form or as tincture or tea, 3 times a day Dill (Anethi fructus): 3 g daily as tincture or tea Fennel (Foeniculi fructus): 0.1 to 0.6 mL of oil (equal to 100-600 mg) daily Fenugreek (Foenugraci semen): 6 g, in capsule form, daily Garlic (Aliii sativa bulbus): 4 to 9 g, in capsule form, daily Goat’s Rue (Galegae officinalis berba): 1 to 2 mL of tincture, 2 to 3 times a day Hops (Lupuli strobili): 500 mg of dry extract daily, 1 cup to 2 cups of tea daily, 1 bottle of stout beer daily Malunggay, Moringa (Moringa oleifera): 250 mg, in capsule form or as tea, 2 times a day Marshmallow Root (Althaeae radix): Two 500 mg capsules 3 times a day or 60 g daily as tincture or tea Milk Thistle (Cardui mariae berba): 12 to 15 g daily as infusion (equal to 200-400 mg of silybin Radish (Raphani sativae radix): 100 g daily Quinoa (Chenopodium quinoa): 45 g daily Red Raspberry (Rubri idaei folium): 2.7 g as three 300 mg capsules 3 times a day or daily as tincture or tea Stinging Nettle (Urtica dioica and Urtica urens): 1.8 g as one 600 mg capsule 3 times a day, 1 cup of tea 2 to 3 times a day, 2.5 to 5 mL of tincture 3 times a day Sorrel (Rumex acetosella): 40 to 80 mg daily as tincture or tea Yarrow (Achilleae albae herba): 1 cup to 2 cups of tea daily, 1 bottle of stout beer daily Oat Straw, Oats (Avenae stramentum): 100 g daily Quinoa (Chenopodium quinoa): 45 g daily Red Raspberry (Rubri idaei folium): 2.7 g as three 300 mg capsules 3 times a day or daily as tincture or tea Red Clover (Trifolium pretense): 40 to 80 mg daily as tincture or tea Stinging Nettle (Urtica dioica and Urtica urens): 1.8 g as one 600 mg capsule 3 times a day, 1 cup of tea 2 to 3 times a day, 2.5 to 5 mL of tincture 3 times a day Vervain (Verbena officinalis): 30 to 50 g daily as tea
The doses mentioned above represent medicinal doses. Food equivalent amounts of these herbals and many others can be found in The Galactagogue Recipe Book.1

As readers of this journal know, breastfeeding has innumerable positive health implications for breastfeeding mothers and children. Therefore, breastfeeding is recommended for all willing and able mothers and infants. Yet there are ever-present obstacles to successful breastfeeding, even with the most motivated mothers. One major obstacle is the prevalence of insufficient milk supply, which may be as high as 15% in new mothers.3 The causes are many, and all possible causes should be investigated and considered. As part of this consultative evaluation, the selection and use of galactogogues can be a viable and reasonable choice. Information presented in this article can be the basis for making objective and informative decisions.

Author Note

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References