Galactogogues

Galactogogues are medications or substances (herbals) thought to improve milk production. Many nursing mothers have heard about this option from friends and the internet and thus ask for professional opinions regarding their use. As recent as 2011, the physicians at the Academy of Breastfeeding Medicine re-evaluated the evidence and have modified their approach regarding the use of galactogogues. This information is summarized in parts of this hand out. The original protocol can be found at http://www.bfmed.org/Resources/Protocols.aspx.

The Academy now suggests using more caution when considering galactogogues, because there are increasing concerns about potential side effects and there is very little valid evidence that they are effective. As with many medical decisions, one must consider if the limited benefit outweighs the potential risk of significant side effects. Sound scientific studies to prove the effectiveness of galactogogues are lacking, and it is thought that a placebo effect and/or improved breastfeeding support during the studies were possibly responsible for noted increases in milk supply.

Optimizing the feeding process is most critical to enhancing milk production. Prior to considering the use of a galactogogue, a thorough evaluation should be performed of the entire feeding process by a lactation expert. Medication should never replace evaluation and counseling on factors that might enhance milk production. This involves optimizing the frequency and thoroughness of milk removal, as follows.

1. Enhance oxytocin release, milk ejection reflex and milk removal by encouraging skin-to-skin contact, breast compressions during nursing, relaxation techniques and optimal latch.
2. Resolve nipple pain by improving latch technique and diagnosing and managing other causes of pain. Refer to a lactation specialist as needed.
3. Encourage unrestricted frequency and duration of breastfeeding, if baby transfers milk effectively.
4. Reduce or stop unnecessary supplementation. Consider using a supplemental nursing system.
5. If the baby removes milk poorly or is unable to feed at the breast, milk must be removed from the breasts by hand expression or with a high quality double electric breast pump. Adjust the pump to a maximum comfortable vacuum and use hand expression while pumping to further enhance milk flow rate and yield.

Consider medical causes of low milk supply
The mother's medical history should be reviewed for possible issues that may contribute to low milk supply. Also consider health issues in the baby that may hinder their ability to remove milk and perpetuate the milk supply. Attempt to remedy these issues if treatment is possible.

Human milk production is triggered when the placenta is expelled and progesterone levels fall. Early on, high prolactin levels and other hormones stimulate the milk-producing cells to start secreting milk (exocrine control). This process is called "lactogenesis II." Thereafter, milk production is controlled locally in the breast tissue (autocrine control). This implies that if the breasts are not drained regularly and thoroughly, milk production will decrease. Thus, more frequent and thorough drainage results in an increased rate of milk production, with both a rapid (per feeding) effect and a delayed (several days) effect. Even though the rate of milk production is controlled locally at this stage of lactation, suckling induces peaks of prolactin. In addition, oxytocin is secreted, which elicits the milk ejection reflex.

Prescription Galactogogues include Domperidone (Motilium) and Metoclopramide (Reglan), which function by opposing dopamine. Dopamine inhibits prolactin secretion from the anterior pituitary gland, so less dopamine promotes more prolactin. Interestingly however, studies have shown that there is no correlation between prolactin levels in the blood and rates or volumes of milk production. Potential significant side effects should be weighed carefully against the lack of evidence that these drugs are effective. Their use as galactogogues constitute "off-label" use in most countries (they are not approved by regulatory agencies for this indication).

Herbals, Foods, and Beverages as Galactogogues -- In many non-Western cultures throughout history, traditional foods and herbal remedies have been used to increase the mother’s strength and enhance lactation. These include fenugreek, goat’s rue, milk thistle (Silybum marianum), oats, dandelion, millet, seaweed, anise, basil, blessed thistle, fennel seeds, marshmallow, and many others. Barley in beer can increase prolactin, but studies are lacking regarding its benefit. Alcohol may actually reduce milk production. The mechanism(s) of action for most herbals are unknown. Most have not been scientifically evaluated, but traditional use suggests safety and possible efficacy. As mentioned previously, increased milk supply may be due to a placebo effect or improved breastfeeding support.

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The following is a summary of the limited information available on the 4 most commonly used galactogogues. It is based on a review of research studies which was done by the Academy of Breastfeeding Medicine. It also makes recommendations to consider if medication is used.

<table>
<thead>
<tr>
<th>Table 2:</th>
<th>Domperidone (Motilium)</th>
<th>Reglan (Metoclopramide)</th>
<th>Fenugreek</th>
<th>Silymarin (Milk thistle)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dose</strong></td>
<td>10mg 3 times/day</td>
<td>10mg 3-4 times/day</td>
<td>3 capsules (500-610mg) 3-4 times/day</td>
<td>420mg per day</td>
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<tr>
<td></td>
<td>-Started between 3-4 wks</td>
<td>-Given 7-14 days</td>
<td>1 cup of tea 3 times/day (1/4 tsp of seeds steeped in 8oz water for 10min.)</td>
<td>1 cup of tea 2-3 times/day (simmer 1 tsp crushed seeds in 8oz water for 10min.)</td>
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<td></td>
<td>-Post partum and given x14days.</td>
<td>-Consider tapering off the dose at end of treatment.</td>
<td>-Given for 1 week</td>
<td>-Studied for 83 days.</td>
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</tbody>
</table>

Use lowest effective dose for the shortest period of time.

**Side Effects**
- Maternal dry mouth, headache, abdominal cramps.
- Heart arrhythmias (prolonged QTC), with oral or IV administration, especially with high doses or concurrent use of drugs that inhibit its metabolism.
- Reversible side effects with short-term use: sedation, anxiety, depression, agitation, motor restlessness, dystonic reactions, extrapyramidal symptoms.
- Irreversible side effects with longer term use: tardive dyskinesia
- Gastric, maple syrup body odor
- Several reports of severe maternal allergic reactions/anaphylaxis due to cross allergy to ragweed related plants, peanuts, chickpeas, soybeans, green peas
- Flatulence
- Cross allergy: possible anaphylaxis to ragweed related plants
- Constipation
- Diarrhea
- Severe maternal allergic reactions/anaphylaxis due to cross allergy to ragweed related plants
- Mild gastrointestinal symptoms
- -Caution with CYP2C9 substrates
- As may increase levels of the drugs.
- Possibly decreases blood levels of estrogens.
- Possible increased levels of statin drugs

**Interactions**
- These drugs inhibit metabolism of domperidone:
  - Fluconazole
  - Grapefruit juice
  - Macrolides
  - Ketokonazole, etc.
- Drug interactions:
  - Monoamine oxidase inhibitors
  - Antidepressants
  - Tacrolimus
  - Antihistamines.
- Fenugreek alters blood glucose levels in persons taking hypoglycemics or insulin.
- Fenugreek increases blood levels of warfarin, heparin, anti-platelet drugs, aspirin.
- Interacts with hawthorne, feverfew, primrose oil, and many other herals.
- Caution with CYP2C9 substrates

**FDA**
- The FDA issued an advisory against its use in lactating women.
- The FDA placed a ‘black box warning’ on this drug in the USA.
- The FDA does not regulate herbs. Dosing preparations are not standardized and contaminants are possible, so caution is required.

So you want to try a galactogogue?

There are many case reports of increased milk supply with the use of galactogogues, most commonly Fenugreek and Special Blend/Mother’s Milk (goat’s rue, fenugreek seed, blessed thistle, nettle leaf, fennel seed, de-ionized water, and grain alcohol). As mentioned, it is possible that an improved feeding regimen with more frequent and thorough milk removal which usually accompanies galactogogue use is the factor which contributes most to any increase in milk supply. However, after thoroughly reviewing the information contained in this handout, if one decides to pursue a galactogogue course of therapy, it is recommended to purchase it at MilkWorks. It will cost around $15-20 per week at the recommended doses. It typically takes around 3-4 days to notice an increase in milk supply, ie a few ounces.

And Remember............................................

A galactogogue is no substitute for a good latch, frequent feedings and removing milk at least 8 times/day with an effective baby or a double electric pump. Other factors that may interfere with milk production or the baby’s ability to remove milk from the breast should be addressed. Always be sure these things are thoroughly considered before resorting to a medication.