

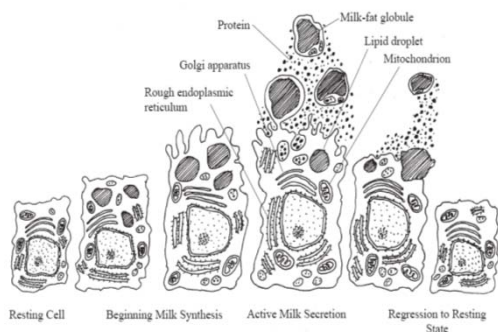
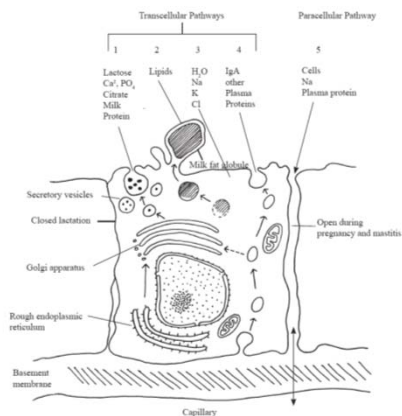
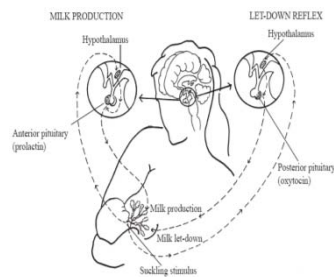
AN UNUSUAL EXPRESSION OF THE LETDOWN REFLEX NORMALISED BY *KALI CARBONICUM*

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HORMONES FOR LACTATION

- There are two primary hormones involved in lactogenesis.
- During breastfeeding, prolactin (which comes from the anterior pituitary), promotes secretory activity at the cellular level...i.e. it makes the milk.
- Oxytocin (which comes from the posterior pituitary) makes the milk available.
- In lactogenesis these hormones have a complementary function with prolactin stimulating oxytocin synthesis.



PROLACTIN

- During pregnancy, prolactin is kept in check by high levels of progesterone (placenta).
- As progesterone levels drop towards the end of pregnancy, prolactin rises to levels 20 times higher than at the beginning of pregnancy.
- And between weeks 35-38, levels double and are correlated to foetal weight and the maturation of foetal organs such as the lungs.

Buckley, S; Hormonal Physiology of Childbearing: Evidence and Implications for Women Babies and Maternity Care; Childbirth Connection; Washington D.C. January 2015

PROLACTIN

- Elevated levels of prolactin towards the end of the pregnancy underpin the upregulation of prolactin receptors
- ... and are associated with nesting behaviours in mammals.
- These higher levels are also associated with the nipple pheromone which newborns use to search for the nipple and then latch.
- An elective caesarean section or induction of labour with prostaglandin gel has been associated with lowering prolactin levels.
- The use of opioids in labour and epidural anaesthesia have also been shown to have deleterious effects on prolactin levels.

◦ Buckley, S.; *Hormonal Physiology of Childbearing: Evidence and Implications for Women Babies and Maternity Care*; Childbirth Connection; Washington D.C. January 2015

PROLACTIN

- During labour prolactin levels drop but rise at the end of labour and remain high for several hours postpartum.
- Ensuring that the baby goes to the breast as soon as possible after the birth and has unrestricted access to the breast during the following 24 hours, is thought to potentiate the formation of prolactin receptors in the breast.
- Along with oxytocin, surges of these two hormones also assist the woman to adapt to her mothering role by helping her to engage with her baby.

PROLACTIN

- It is the process of suckling itself that maximises prolactin secretion, and each breast has an individual response.
- As physicians we need to keep in mind the fact that an increase in nipple stimulation will always give rise to an increase in prolactin, and, therefore, milk production.

PROLACTIN

- Milk output can therefore be increased if both breasts are pumped simultaneously or the baby is suckled more frequently. This is so not only because prolactin levels rise in response to the increased stimulation, but also because local mechanisms exist within the breast itself associated with actual milk removal being responsible for volume control.
- Partly this is due to the presence of oxytocin, but also to the presence of a whey protein in residual milk, which acts as a feedback inhibitor of lactation if the breasts are not regularly drained.
- Furthermore, since increased insulin is known to stimulate the synthesis of casein and α -lactalbumin, suckling or pumping just after eating is considered to be advantageous.

◦ Prentice A et al; Evidence for local feedback control of human milk secretion *Biochem Soc Trans* 17:122, 1989

PROLACTIN

- Males and females have essentially the same baseline levels of prolactin (which varies according to levels of psychosocial stress and rises during sleep).
- However, because these levels are sustained due to nipple stimulation, there have been (strange as it may seem) recorded cases of adult males having intentionally lactated (and unintentionally lactated during starvation conditions);
- ... and it is perfectly feasible for women who have not undergone a recent birth to lactate in response to nipple stimulation. Indeed, women who have never had a child of their own have lactated. The secretion is variable, although is adequate in some.
- Our repertoires acknowledge this fact, with many remedies being listed; *Mercurius* being the best known remedy for this.

◦ Marasco L; Do Men Have Breasts? *ALCA Galaxy* 10(1):23-24, 1999

PROLACTIN

- The primary role of prolactin is then, as its name implies, in the stimulation of lactation. However, its role is multifactorial.
- Among other things, it increases lipoprotein lipase activity in the mammary gland.
- Some prolactin actually appears in the milk and, although its specific role has yet to be fully determined, it is thought to influence fluid and ion (Na, K, Ca) absorption from the neonatal jejunum.
- In the breast itself, along with oestrogen and progesterone, it attracts and retains immunoglobulin A (IgA) immunoblasts from the gut-associated lymphoid tissue for the development of the mammary gland's immune system.

PROLACTIN

- Prolactin is thought also to enhance lactational amenorrhoea by suppressing the release of FSH and LH from the pituitary.
- Specifically this occurs as a consequence of neural input from the nipple to the hypothalamus, resulting in the production of β -endorphins. They, in turn, suppress the release of gonadotrophin releasing hormone (GnRH), resulting in inhibition of ovarian function due to lack of FSH and LH.
- Another theory is that during early lactation prolactin may have a direct effect on the ovaries, causing them to be unresponsive to gonadotrophins.
- Either way, it is when the infant begins solid food and nipple stimulation lessens that most women experience a return of ovarian function and menstruation.

○ Lawrence R & R; *Breastfeeding: A guide for the medical profession* 5th edn Sydney, 1999, Mosby

PROLACTIN AND ERGOT

- It's been known for centuries that cows that graze on fields containing ergot produce no milk.
- Prolactin is inhibited by ergot, which is frequently prescribed as ergometrine or syntometrine for the management of the third stage of delivery.
- Studies in the early 1970s indicated that ergot alkaloids had a direct action on the pituitary and an inhibitory effect on prolactin secretion and thereby milk production...in rats.
- So this almost routine practice in some birthing units may have a long-term bearing on the drop-off rates in lactation.
- Interestingly, ergotamine is cited in the (limited) list of pharmaceutical drugs that are contra-indicated during breastfeeding as it has been noted to induce vomiting, diarrhoea and convulsions in the infant!

○ Shaer CJ, Clemens JA, *Inhibition of Lactation and Prolactin Secretion in Rats by Ergot Alkaloids* *Endocrinology* 90:265, 1972

○ Worthington-Roberts S, Rodwell Williams S, *Nutrition in Pregnancy and Lactation* 4th edition St. Louis, 1989, Times Mirror/Mosby

PROLACTIN AND ERGOT...SOME STUDIES

- The effect of various ergot alkaloids on prolactin secretion in adult female rats was determined by radioimmunoassay.
- Ergocorine and ergocristine in doses of 0.25 to 1.0 mg lowered serum prolactin markedly by 1 hour with the effect persisting for 24 hours at the larger doses.
- Several other ergots had similar effects while the dihydro derivatives had diverse responses.

○ Nasir H, Pearson OH, *Inhibition of prolactin secretion by ergot alkaloids*, *Acta Endocrinol (Copenh)*. 1975 Nov;80(3):429-43

PROLACTIN AND ERGOT (BROMOCRIPTINE)...SOME STUDIES

- Eleven studies were done in humans between 1972-1976 showing the effectiveness of using bromocriptine (on average, 5 mg daily for a week, in order to prevent engorgement) in suppressing lactation.

○ Parkes D in *Advances in Drug Research* (Ed: Harper NJ and Simmonds AB) vol12, Chapter 7:283-7; 2013 Elsevier

SYNTOMETRINE AND PROLACTIN

- The effect of a single dose of ergometrine, 0.5 mg, with oxytocin, 5 units, (syntometrine) given with the delivery of the anterior shoulder of the baby was compared to that of a single dose of oxytocin, 5 units, given at a similar time, monitoring the serum prolactin levels during the immediate postpartum period.
- A suppressant effect of syntometrine was demonstrated, leading to the conclusion that ergometrine may have a pharmacological effect similar to bromocriptine (2-bromo-a-ergocryptine), in suppressing serum prolactin levels.

○ Symes JB, *A study on the effect of ergometrine on serum prolactin levels following delivery* / *Obstetrics and Gynaecology* vol 5 (1), 1986; 36-38 (Taylor Francis online 2 July 1990)

ERGOMETRINE AND PROLACTIN

- A randomised, controlled trial of 1429 women was carried out to compare 'active' management of the third stage of labour, using i.v. ergometrine 0.5 mgs, with a method of 'physiological' management, in women at 'low risk' to haemorrhage.
- A separate sub-study, with 168 women in each of the two groups, examined the possible effects of ergometrine on serum prolactin levels and the duration of breastfeeding.
- No difference was found in peak (post-suckling) serum prolactin levels taken from 126 women between 48 and 72 hours postpartum. Further studies with larger sample sizes would give a more dependable result.
- Women who did not receive the drug ergometrine were more likely to continue breast feeding for longer than four weeks than those who did (p less than 0.05). It is recommended that this drug should not be given routinely to women intending to breastfeed.

○ Begley CM, *The effect of ergometrine on breast feeding* *Midwifery* 1990 Jun;5(2):60-72

ERGOMETRINE AND PROLACTIN

- Another study found:
 - a 23% reduced chance of breastfeeding success at 48 hours among women administered a combination of ergometrine and syntometrine
 - a 36% reduced level of success when ergometrine was used alone
 - a 50% reduction in breastfeeding success in first time mothers when ergometrine was used

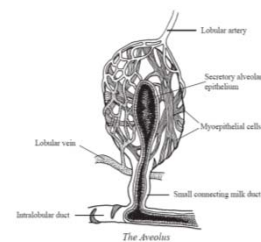
○ Buckley, Si; *Hormonal Physiology of Childbearing: Evidence and Implications for Women Babies and Maternity Care*, Childbirth Connection, Washington D.C. January 2015

SECALE AND PROLACTIN

- Of further interest, is the fact that *Secale* is listed as a 2nd degree remedy under [breasts, atrophy of; breast, milk absent and breast, milk disappearing], and 1st degree under [breast, milk scanty].
- Furthermore, the mind symptoms of *Secale* may prove to be telling, possibly heralding the mental emotional effects that ergometrine may have during this time (usually devoted to establishing a close mother-baby bond).
- Here we find
 - delirium, abandons her relatives
 - forsakes relations
 - contemptuous, relations for
- It leaves one acknowledging that, at some deeper level, the routine use of ergometrine possibly has an ability to interfere with levels of prolactin such that the initial instinct to mother is severely disrupted at an endocrine level.
- Sankaran lists *Secale* as belonging to the Leprosy miasm [isolation]

OXYTOCIN

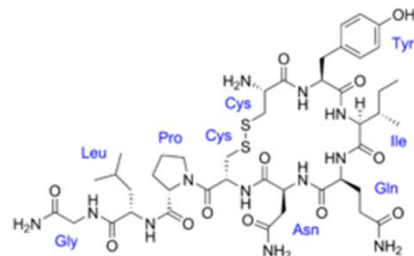
- The milk is made available by virtue of the “letdown reflex”.
- This is a neuro-hormonal reflex which is primarily elicited through suckling.
- During breastfeeding, when the hormone is released from the pituitary and enters the bloodstream, it is carried to a network of oxytocin receptors in the breast, which are found in the basement membrane of the myoepithelial cells which surround each alveolus (milk cell).
- These oxytocin receptors cause the alveoli to contract, thereby releasing the milk into the ductal system from where it is easily removed by suckling.



Modified from Vohar: H: *The breast: morphology, physiology and lactation* New York, 1974, Academic Press

OXYTOCIN

- Discovered in 1909 by Sir Henry Dale when he noted that an extract from the pituitary dorsal lobe caused contractions of the uterus in pregnant cats.
- A few years later he discovered that it, similarly, caused the alveoli in the breast to contract, thereby triggering the milk ejection reflex.
- We now know that it is mainly formed in two large groups of nerve cells in the brain, called the supraoptic and paraventricular nuclei; both located in the hypothalamus.
- It can travel in the blood, where it acts as a hormone; or, via the nerves, where it acts as a neurotransmitter.
- It is also known to affect other nerve cells by diffusion, so has a paracrine effect.



OXYTOCIN

- All mammals require oxytocin for all aspects of sexual maturation, courtship, pregnancy, birth and breastfeeding.
- Research shows that oxytocin induces not only maternal behaviours such as breastfeeding and bonding; but also
 - trust,
 - cognition,
 - social behaviour,
 - positive emotions and
 - regulation of autonomic nervous system and immune system

OXYTOCIN

- Oxytocin regulates the autonomic nervous system (ANS), which controls the internal organs and other key involuntary body functions....that is, it regulates homeostasis (the primary function of Psora... “the engenderer of all disease”).
- It does this by increasing activity in the parasympathetic nervous system (PNS) branch of the ANS, which slows the heart, reduces blood pressure and energy expenditure, and **promotes** rest, **digestion**, and affiliation, resulting in a “calm and connection” effect.

OXYTOCIN

- It reduces activity in the flight-or-flight, (sympathetic nervous system branch of the ANS,) reducing levels of the stress hormones epinephrine (adrenaline) and norepinephrine (noradrenaline).
- As well, it reduces activity in the hypothalamic-pituitary-adrenal pathway (HPA system), reducing medium-term stress response hormones, including corticotrophin releasing hormone (CRH), adrenocorticotrophic hormone (ACTH), beta-endorphins, and cortisol.
- ***Therefore it would be fair to say that it moderates Sycosis.***

OXYTOCIN

- In the clinical setting, it has been constantly observed that the milk ejection (letdown) reflex is inhibited by physical or emotional stress and may be conditioned so that it is elicited by the sound or thought of the baby or the ritual of preparing to suckle.
- Therefore mothers need to be encouraged to relax at feed time by making sure they, consistently, are comfortably situated in familiar and pleasant surroundings with water at hand.

OXYTOCIN

- However, even though having a routine associated with feeding can help to habituate the response, once lactation is established the letdown reflex may still take some seconds or minutes to become activated and is expressed in a variety of ways.
- Some mothers report a sense of turgescence or tingling in the breast, which may be pleasurable or painful.
- Others may experience a heightened sense of heat, which flushes over the body.
- In most women milk begins to drip or squirt from the breast not being suckled.

OXYTOCIN

- If none of these subjective signs are noted, the letdown is always apparent with the change of suckling pattern in the baby, who is forced by the pressure of the incoming bolus of milk to suck/swallow in long, rhythmic draughts that tend to reflect the pulsatile nature of the release of oxytocin from the pituitary.

THE CASE

- With respect to its moderation of digestion, oxytocin has a specific stimulatory effect on the activity of vagal nerves and the release of hormones promoting digestion.
- **It also has a moderating influence on Sycosis.**
- And so it is aspects of these features which are highlighted in the following unusual case of a 28 year old woman, five months into her lactation, who sought my help for episodes of an exaggerated gag reflex which occurs as her milk lets down.
- The main symptom is that her heart begins to race and then she gags violently and may occasionally vomit (which ameliorates). She also often gags when she hears her baby cry.

- She was an only child as her mother had a history of nephritis, born a month prematurely due to pre-eclampsia.
- She was breastfed for just one month and doctors advised a late introduction of solids until after 12 months to prevent kidney problems.
- She reports that “as a kid I often could feel sick when I ate and can often skip meals as I’m never really hungry. I could live on chocolate, peanut butter and bananas....oh, and cups of tea! I was a chocoholic in my pregnancy.”
- She weighs 53kg and her diet is less than optimal.

- She reports that she had a happy childhood; sustained a greenstick fracture to the right arm after a fall in primary school but otherwise had no problems with her health; no childhood diseases.... **fully vaccinated.**
- Menarche was at 14 with a normal monthly pattern, but heralded the onset of severe acne which was modified by the OCP which she was on from the age of 15-25.
- She met her husband at university and married at 26.

- She decided to get HepB and cervical cancer vaccines at age 25 and had a molar pregnancy at 26 after which she developed severe cervical dysplasia; going from clear to CIN3 in a matter of months.
- During this recent pregnancy the status settled to CIN2 and is now at CIN1.

- Her pregnancy progressed normally until week 31 when she developed pre-eclampsia and was confined to bed and given Labetalol and a calcium-channel blocker.
- Her blood pressure was 140/90 and she had protein in her urine and swollen extremities.
- A Caesarean section was performed at week 34 for ongoing problems with the pre-eclampsia and perceived growth retardation of the infant.
- He was in Special Care for several weeks and establishing breastfeeding was difficult but she believes in its importance, so persevered.

- Her post birth BP was 200/110 and is now 170/100 and she experiences episodes of “feeling like my heart is pounding to try and get out of my chest.”
- “It’s like a sudden thump of my heart; it’s always at night and makes me feel anxious and is followed by diarrhoea. It’s like an adrenalin rush! I think it only happens at night when I’m quiet as *keeping busy* seems to keep it at bay.”

IMPORTANT PHYSICAL GENERALS:

- Vertigo
- Occasional ringing in the ears
- Tongue coated white and bad breath in the morning..."in the morning it smells like someone pooped in my mouth"
- High thirst (about 2-3 litres daily) with only an average urine output and minimal perspiration. However a "cup of tea before I go to bed will certainly result in me getting up to urinate not long after I've dropped off to sleep"
- Sleeping on the abdomen with her feet out ..."they burn"; and she can wake several times at night feeling really hot and sweaty
- Loose stool..."I feel like I've had constant diarrhoea since the baby. I go at least twice in the day and about three times at night"
- She has a history of plantar warts as a child and
- On-going problems with her lower back (specifically the left sacroiliac joint) for which she seeks regular chiropractic treatment; worse during the pregnancy and since the birth

MENTALS:

- Fearful of being left by her husband..."I'm always happier when he's around!"
- Claustrophobia..."I don't like to be hemmed in; I don't do crowds; especially noisy ones!"
- Panic attacks. This is a recent symptom; a feeling of high anxiety and of being overwhelmed
- Anger..."waves of almost violent angry feelings especially when I can't get the baby to settle."
- *Considering the choice of Simillimum, this is, perhaps, a "shriek for aid" or, perhaps a matter of "impatience, children; about his" and "shrieking at trifles"*

THE PRESCRIPTION

- Generally when I'm faced with a clinical situation where the lactation could be abandoned if resolution of the symptoms is not immediate and there's a strong miasmatic thread in the case, I always begin with the nosode so prescribed a pm stat dose of *Medorrhinum* 200C followed the next day by a split dose of *Kali-carb* 200C MNM.
- She was also advised to improve her diet with an emphasis on protein and potassium-rich fruit and vegetables.

RATIONALE...MENTALS:

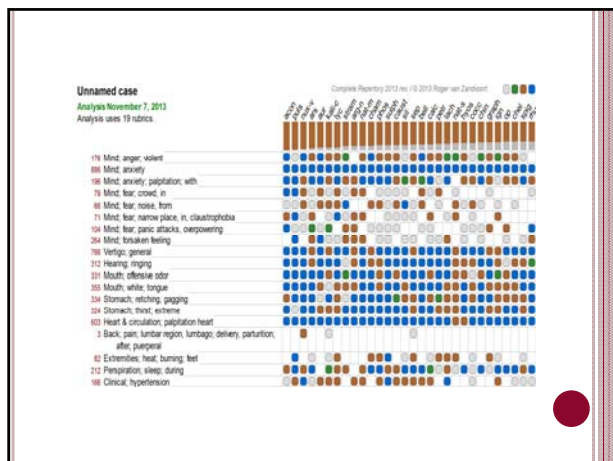
- NWS vaccination [*med*] and *kali-c* belongs to the sycotic miasm
- Previous history of plantar warts and current history of cervical dysplasia
- With the need to moderate sycosis, there is an exaggerated expression of what should be a normal hormonal response to oxytocin [adrenalin and oxytocin are hormonal antagonists]
- Keeping busy ameliorates
- **Mind** abandoned; forsaken feelings: *kali-c*
- **Mind** panic; attacks of anxiety: *med*
- **Mind** anxiety: *KALI-C*; *med*
- **Mind** claustrophobia; fear in narrow places: *kali-c*; *med*
- fear; crowd, in: *kali-c*
- **Mind** fear; noise, from: *med*
- **Mind** anger, violent: *kali-c*

RATIONALE...PHYSICAL GENERALS:

- **Vertigo** *kali-c*; *med*
- **Hearing** noises in; ringing: *KALI-C*
- **Mouth** breath offensive: *kali-c*; *med*
- **Tongue** white: *kali-c*
- **Heart** palpitations: *KALI-C*; *med*
palpitations; anxiety, with: *kali-c*
palpitations, tumultuous: *KALI-C*
- **Blood** hypertension: *kali-c*

RATIONALE...PHYSICAL GENERALS:

- **Stomach** retching gagging: *kali-c*
- **Stomach** thirst extreme *kali-c*; *med*
- **Rectum** stool liquid; diarrhoea: *kali-c*; *med*
diarrhoea, night: *kali-c*
- **Rectum** diarrhoea, night; anxiety, with: *thuja* [NWS vaccination]
- **Sleep** position, abdomen: *MED*
- **Sleep** perspiration, during: *kali-c*
- **Back** pain, lumbar: *kali-c*; *med*
- **Feet** heat, burning: *kali-c*; *MED*



CONFIRMATION FROM THE MATERIA MEDICA

- Although it wasn't the highest score in the matrix, it was the only remedy to cover all the chosen rubrics.
- Confirmation of the proposed effectiveness of *Kali carb* as a prescription, is found in the Materia Medica and includes such symptoms as:
 - "debilitating states after miscarriage and labour" [N.B. her back pain which is a PRQS symptom];
 - "a tendency to start...when touched...which leads to a thrill through the whole body";
 - "twitching of the muscles";
 - "convulsions, seem to pass off with belchings" and
 - "violent palpitations, shake the whole body".

- The confirmatory modalities include: "better while moving and worse from loss of fluids after childbirth".
- Additionally, *Kali carb*, which is well known for heart and kidney pathology, is full of fear and imaginings especially for the future and is full of anxiety when alone.

- A follow up three months later found her to be in a much better space and still breastfeeding. "I've been pretty good; a lot better than when you prescribed for me, that's for sure. The gagging and diarrhoea have basically stopped. Occasionally I'll have some slight gagging when I'm very tense. I am getting more sleep which is, for sure, helping and I don't feel stressed and on edge anymore. All in all, I am feeling really good; very happy and loving life with my hubby and gorgeous boy".
- She had no more trouble for the remainder of her lactation and enjoyed a subsequent lactation with her second baby with a normal milk ejection reflex.