Prolactin Secretion & Chinese Medicine

Prolactin is a hormone secreted by the anterior pituitary in both men and women. Although it is believed to have many different functions in both sexes, according to Richard E Blackwell, "it is generally regarded as the one hormone that is essential for lactation." Among the hormones secreted by the anterior pituitary, it is unique in that its secretion is primarily inhibited, rather than stimulated, by other hormones. As an extension of this, the disturbances of prolactin secretion are primarily due to hypersecretion (i.e., hyperprolactinemia) as opposed to hyposecretion. Hypersecretion results in galactorrhea but also in ovarian dysfunction, with inhibition of both progesterone and estradiol. Pathological causes of hyperprolactinemia include hypothalamic disorders, prolactin-secreting pituitary tumors, acromegaly, Cushing's disease, primary hypothyroidism, chronic renal failure, liver disease, hypernephroma, and chest wall lesions resulting from surgical scars, trauma, neoplasms of the chest wall, and herpes zoster. In addition, certain drugs may also result in hyperprolactinemia, such as phenothiazines, tricyclic antidepressants, haloperidol, reserpine, calcium channel blockers, and oral contraceptives. Chinese medicine as a system does not use the concept of hormones, let alone specific hormones such as prolactin. However, Chinese medicine does recognize and remedially treat the clinical conditions which are due to prolactin secretion disturbances. Below are abstracts of two recently published works on the Chinese medical treatment of prolactin imbalances.

Low Serum Prolactin

(From “One Case of Low Serum Prolactin Treated by Chinese Medicine” by Guo Yun et al., Si Chuan Zhong Yi [Sichuan Chinese Medicine], #12, 2000, p. 33)

The patient was a 26 year old female. As of Nov. 13, 1998, her menses had been stopped for one and a half years. Menarche had occurred at 16 years of age and her menses had been regular. However, after she was married, her menstrual cycle had become chaotic. Her menses became sparser and sparser in terms of onset until she gradually developed amenorrhea. After the woman had been married for three years without conceiving and had had amenorrhea for half a year, she was treated for 50 days as an out-patient. The result of this was that the next year she gave birth normally to a baby girl and both mother and child were healthy. After delivery, the amount of her breast milk was normal and her menses returned. However, after ceasing breast-feeding, she again developed amenorrhea. The least time between menses was three months, but mostly there were a half to one year between menstruations. In each case, menstruation was stimulated by intramuscular progesterone injections.

At the time the authors of this case examined this woman, she had low back and abdominal aching and pain, a scanty white vaginal discharge, a dark, blackish facial complexion, rough, scaly skin, a tendency to lose stools, a pale red tongue with thin, slimy, white, and a deep, fine pulse. Gynecological examination revealed normal pubic hair and external genitalia, no atrophy of the vaginal tract, a uterus positioned anteriorly which was, however, normal in size, and both adnexa without abnormalities. Ultrasonography showed that the woman's ovaries were normal in size. Endocrine levels were: FSH 2.710 mIU/ml, LH 8.927 mIU/ml, PR 0.05 ng/ml, E 66.411 Pg/ml, T 1.530 ng/ml, and P 3.310 ng/ml. (Prolactin [PR] should normally fall between 3-20 ng/ml. Anything less than 3 ng/ml is considered low.)

Based on the above, the woman's disease diagnosis was amenorrhea due to low serum prolactin. Her Chinese medical pattern was discriminated as liver-kidney insufficiency with congestion and obstruction of the uterine vessels. The treatment principles were to course the liver, supplement the kidneys, and fill the essence, transform stasis and free the flow of the menses. The formula used was Xiao Yao San Jia Wei (Rambling Powder with Added Flavors): Fructus Lycii (Gou Qi Zi), Caulis Millettiae (Sa) Spatholobi (Ji Xue Teng) paste, Fructus Liquidambaris (Lu Lu Tong), and Radix Achyranthis Bidentatae (Niu Xi), 20g each, processed Radix Polygoni Multiflori (He Shou Wu), Rhizoma Atractylodis Macrocephala (Ba Zhu), Hirudo Seri, Ischicians (Shu Zhi), Semen Pruni Persicae (Tao Ren), Flos Carthami Tinctoriae (Hong Hua), Radix Bupleuri (Chai Hu), Radix Albus Paeoniae Lactiflorae (Bai Shao), and Sclerotum Poriae Cocos (Fu Ling), 15g each, Radix Angelicae Sinensis (Dang Gui), 12g, Herba Menthae (Bo He), 10g, and Radix Glycyrrhizae (Gan Cao), 5g.

After taking three ji of the above medicinals, the menses had still not come. Therefore, He Shou Wu, Niu Xi, Tao Ren, and Hong Hua were removed and 15 grams of Herba Epimedii (Xian Ling Pi) and Rhizoma Curculiginis Orchidios (Xian Mao) were added. After taking six ji of this prescription, the patient's menses came. Its amount was scanty, its color was dark red, and the patient experienced vexatious pain throughout her body. After flowing for three days, the menses stopped.

At this point, another 23 ji of the above medicinals were administered, but still her menses did not come again for another half year. Therefore, her tongue and pulse were re-examined more minutely. Her tongue was fat and pale with white fur, and her pulse was deep and moderate (i.e., relaxed or slightly slow). That plus the fact that she had suffered from loose stools and diarrhea for many years suggested that her pattern discrimination be changed to a liver-kidney yang
vacuity. This then led to the prescription of Er Xian Tang (Two Immortals Decoction) plus Gan Mai Da Zao Tang (Licorice, Wheat & Red Dates Decoction) with added flavors: Fructus Triticci Aestivii (Xiao Mai), Rhizoma Curculiginis Orchoides (Xian Mao), Herba Epimedi (Xian Ling Pi), Radix Glycyrrhizae (Gan Cao), Fructus Zizyphi Jujubae (Da Zao), Rhizoma Atractylodis (Cang Zhu), Rhizoma Cyperi Rotundii (Xiang Fu), Euopolyphaga Scu Ophiostoplatia (Tu Bie Chong), Fish Glue (Yu Piao Jiao), Balbus Fritillariae Thunbergii (Zhe Bei Mu), Semen Cuscutae Chinensis (Tu Si Zi), Fructus Ligustri Lucidi (Nu Zhen Zi), and Semen Plantaginis (Che Qian Zi), 15g each, and Fructus Lycii Chinensis (Gou Qi Zi), 20g. These medicinals were meant to warm and supplement the liver and kidneys, fill the essence to promote the engenderment and growth of yang, fortify the spleen, eliminate dampness, and transform phlegm, dispel stasis and free the flow of the menses.

After taking three jis of this formula, her menses came like a tide. Their amount was profuse, their color was red, and they lasted six days. However, the patient's low back was sore and her stools were still looish. Therefore, to consolidate the treatment effects, the above formula was administered for another half year. During this time, the woman's menses came every 24-40 days and lasted 5-6 days each time. Eventually the woman became pregnant and was still pregnant at the time this case was written.

In the authors' discussion of this case, they say that, in Chinese medicine, the diseases which correspond to low serum prolactin are blocked menstruation or amenorrhea (jing bi) and infertility (bu yun zheng). In women, the blood is the main thing, and the liver is the former heaven in women. The liver stores the blood and governs coursing and discharge. Its body is yin, but its function is yang. This means that blood makes its body and qi makes its function. The liver and kidneys have a common source. The kidneys store the essence and govern birth and growth. Liver yang and kidneys yang function together to promote the transformation and engenderment of blood and essence. If the liver and kidneys are insufficient and liver and kidney yang is vacuous, this may lead to the essence and blood becoming depleted and consumed. Because of a decline especially in the function of the liver in terms of coursing and discharge, qi and blood stasis and stagnation congest and obstruct the uterine vessels and the menses are not able to come like a tide on time. If this becomes severe, it eventually results in amenorrhea. In this case, besides banking and supplementing liver and kidney blood and essence, it was necessary to also supplement and invigorate liver yang. In the authors' opinion, Gou Qi Zi and Xian Ling Pi are essential medicinals for supplementing liver yang.

High Serum Prolactin
(From "The Treatment of 25 Cases of High Serum Prolactin with Qing Gan Jiang Ru Tang (clear the Liver & Lower [Prolactin Decoction] by Yang Xiao-fei, Si Chuan Zhong Yi [Sichuan Chinese Medicine], #3, 2001, p. 52)

Cohort description:
All 25 patients in this study were seen as out-patients. The youngest was 21 and the oldest was 38 years old, the shortest course of disease was two months and the longest was nine years. Serum prolactin (PRL) was as low as 23.1ng/ml to as high as 211.2ng/ml. In nine cases, menstruation was scanty; in 16 cases, there was amenorrhea; in seven cases, there was spontaneous galactorrhea; in 12 cases, milk could be expressed from the breasts; and in six cases there was no obvious overflow of milk. Diagnostic criteria included: galactorrhea, amenorrhea, scanty menstruation, gradual obesity, infertility, and anovulation, PRL in excess of 20ng/l, and CT examination revealing a pituitary tumor.

Treatment method:
Qing Gan Jiang Ru Tang consisted of uncooked Fructus Germinatius Hordei Vulgaris (Mai Ya), 60g, Radix Salviae Miltiorrhizae (Dan Shen) and Herba Leonuri Heterophylli (Yi Mu Cao), 30g each, Schennum Poriae Cocos (Fu Ling), Radix Angelicae Sinensis (Dang Gui), Radix Albus Paeoniae Lactiflorae (Bai Shao), Fructus Ligustri Lucidi (Nu Zhen Zi), Herba Ecliptae Prostratae (Han Lian Cao), and Radix Diapsci (Xu Duan), 15g each, Herba Lycopii Lucidi (Ze Lan), Rhizoma Atractylodis Macrocephalae (Bai Zhu), Rhizoma Cyperi Rotundii (Xiang Fu), and Herba Epimedi (Xian Ling Pi), 12g each, Cortex Radicis Moutan (Dan Pi), Fructus Gardeniae Jasminoidis (Zhi Zi), Radix Bupleuri (Chai Hu), Radix Cyathulae (Chuan Niu Xi), and Pericarpium Citri Reticulatae (Chen Pi), 9g each. One Ji was administered orally per day in two divided doses, morning and evening, with one month equaling one course of treatment. During this time, patients were advised against emotional tension, anger, and fear and prohibited from eating acrid, peppery foods.
TREATMENT OUTCOMES:

Among these 25 cases, 19 or 76.4% experienced a marked effect, meaning that their serum PRL was 20ng/ml or lower, their menses returned to normal, and any spilling over of milk or other symptoms disappeared. Four cases (16%) had serum PRL 25ng/ml or less and either their clinical symptoms disappeared or markedly improved. Only two cases (8%) got no effect.

REPRESENTATIVE CASE HISTORY:

The patient was a 30-year-old female agricultural worker who was first seen on Aug. 20, 1999. This woman had previously been diagnosed with galactorrhea-amennorhea-menstrual irregularity syndrome. She had had galactorrhea for seven years, and, although she had been married for five years, she had never conceived. When she menstruated, it was sometimes early and sometimes late, her cycle being as short as half a month and as long as two months. Its amount was scanty, and it dribbled and dripped and would not stop. The color of the menstruate was purplish and dark, and, before menstruation, there was breast distention and pain, vexatious heat in the five centers, chest oppression, and rib-side pain. The patient's serum PRL was more than 50ng/ml. Ultrasound revealed no ovulation. The woman's tongue was purplish and dark with pale yellow fur, and her pulse was fine and bowstring. After taking Qing Gan Jiang Ru Tang for three continuous courses, her serum PRL was less than 20ng/ml and her menses were normal. Ultrasound also showed that she had ovulated normally for three months. On follow-up after three months, the woman was pregnant.

Dr. Yang believes that liver depression transforming fire due to emotional problems is the main disease mechanism of this disorder. This heat forces the milk to spillover outside. However, the liver and kidneys share a common source, and Dr. Yang attributes the scanty menstruation, amenorrhea, and infertility to liver-kidney yin vacuity. Therefore, his treatment protocol is primarily based on the principles of enriching and supplementing the liver and kidneys, clearing the liver and resolving depression. However, the formula as a whole also fortifies the spleen and quickens the blood. It may be seen as a modification of Dan Zhi Xiao Yao San (Moutan & Gardenia Rambling Powder). Within this formula, a large dose of Mai Ya is used based on its empirical effect of dispersing breast distention and stemming lactation.

DISCUSSION:

I believe the above two articles, one a case history and the other a clinical audit, suggest that internally administered Chinese medicinal formulas are capable of regulating prolactin secretion in human females whether that secretion be hyper- or hypoprolactinemia. As both articles evidence, there is no single Chinese medicinal which is the "magic bullet" for regulating prolactin in Chinese medicine. Rather, polypharmacy formulas are administered based on Chinese medical pattern discrimination. Although these polypharmacy formulas are not specific treatments for hypo- or hyperprolactinemia, these articles suggest that, when a patient's Chinese medical pattern of disharmony is brought back into balance by the administration of appropriate Chinese medicinals, there is not only improvement in clinical symptoms but a simultaneous shift towards normal in serum prolactin levels as well.

REFERENCES

3. Ibid., p. 77