

Elevated Prolactin



**Southern Ontario
Fertility Technologies**

Introduction

Prolactin is the hormone secreted from the pituitary gland that stimulates **milk production** from the breasts. It is measured during the investigation of some symptoms such as galactorrhea (inappropriate breast milk production), headaches, visual problems, irregular bleeding and infertility.

Periodic and Sustained Elevations

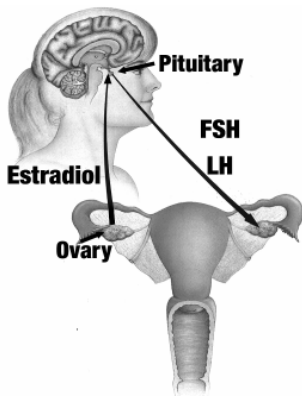
Periodic elevations of prolactin are very common and don't necessarily indicate a problem. Eating, stress, sexual excitement and certain drugs can temporarily elevate the prolactin level. If an elevation of prolactin is discovered, it should be repeated to determine if it is variable or constant. **Variable levels seldom require investigation or treatment.**

Sustained elevated levels require investigation and may require treatment. Investigation includes a CAT scan or MRI of the pituitary region. These tests may demonstrate a prolactin-secreting tumor of the pituitary. If it is small (≤ 1 cm), it is called a microadenoma. If it is greater than 1 cm, it is called a macroadenoma. Cancer in the pituitary is exceedingly rare and most tumors represent local increases (hyperplasias) of the secreting cells and respond well to treatment.

Symptoms

Elevated prolactin levels may cause no symptoms. If the levels are sustained and high enough they may cause irregular periods, galactorrhea (inappropriate secretion of breast milk), headaches or visual disturbances. Elevated prolactin interferes with fertility by causing anovulation (failure to release an egg in each menstrual cycle).

Elevated Prolactin and Infertility



Elevated prolactin causes anovulation by interfering with the normal release of follicle stimulating hormone (FSH) and luteinizing hormone (LH) from the pituitary. It can also interfere with the effectiveness of clomiphene citrate which is a very common first therapy for infertility. Clomiphene requires the intact ability of the pituitary to secrete FSH and LH. Since increased prolactin levels can interfere with FSH release it can interfere with clomiphene's effectiveness. Whether elevated prolactin decreases the chance of pregnancy in infertility treatments where natural cycles are overridden is controversial. If the prolactin level is found elevated in an intrauterine insemination (IUI) or in vitro fertilization (IVF) cycle, it may be treated depending on previous levels, the degree of elevation and the supervising physician's beliefs.

Treatment

Usually, **bromocriptine** (parlodel) is used for treatment. Treatment is commenced with 1.25 – 2.5 mg once per day for at least one week after which time it may be increased. Bromocriptine is a reasonably unpleasant drug. Over 50% of patients taking bromocriptine will

complain of side effects and 20% will discontinue the medication because of the side effects. Gastrointestinal (stomach and bowels) side effects include nausea (51%), vomiting (5%), abdominal cramps (7%), diarrhea (3%), and constipation (3%). Taking bromocriptine with the evening meal or with a snack at bedtime can minimize these symptoms. If the symptoms still persist taking it vaginally may alleviate them.

Postural hypotension (decreased blood pressure in the upright position) can lead to dizziness (16%), or fainting. These effects are usually limited to the first few days. Headaches (18%), fatigue (8%), lightheadedness (6%), and nasal congestion (5%) can also occur. These symptoms also lessen with time. Nasal congestion, if persistent can be treated symptomatically with nasal sprays or decongestants.

Cabergoline is a newer medicine available for the treatment of hyperprolactinemia. It has several advantages over parlodel. Only 8.5% of patients complain of side effects and only 3.9% discontinue the medication. It only has to be taken once per week. All patients requiring treatment for hyperprolactinemia are treated with cabergoline at S.O.F.T.

Elevated Prolactin, Bromocriptine and Pregnancy

Once a pregnancy has occurred, bromocriptine or cabergoline is stopped except in the case of macroadenomas. Even if a microadenoma is present, the chance of persistence or progression during pregnancy is so small, that investigations are only carried out if symptoms occur.

Long Term Treatment

Good evidence exists that the **natural history (whether the condition will resolve, stay the same or get worse) is unaffected by treatment.** Bromocriptine or cabergoline are only used to treat the symptoms. Use of these medications is justified for galactorrhea or during infertility treatment. When there are no symptoms, treatment is not necessary. Irregular menstruation poses a difficult treatment dilemma. If an elevated prolactin is causing anovulatory cycles it may predispose to thickening of the endometrium (endometrial hyperplasia or carcinoma) because of unopposed estrogen. It may also predispose to osteoporosis and an increased incidence of heart disease because of the generally lower estrogen levels.

This can be corrected with bromocriptine or cabergoline but because of the high incidence of side effects it is sometimes preferable to restore adequate estrogen with an oral contraceptive or hormone replacement therapy.

Surgery

In some situations, the hyperprolactinemia does not respond to medication. These situations are very rare and surgery to remove part or the entire pituitary may be necessary.

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