SAINT JOHN'S HEALTH CENTER
BRAIN TUMOR CENTER

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Prolactinoma

Introduction

Prolactinomas are the most common pituitary adenoma and secrete excessive prolactin. They generally have different presentations in women and men. The normal prolactin level is less than 20-25 ng/ml.

Symptoms

In most women with prolactinomas, the tumors are detected when they are microadenomas and the prolactin level is moderately elevated (50 - 300 ng/ml). In contrast, in men prolactinomas are typically detected when they are macroadenomas, with prolactin levels over 500 - 1000 ng/ml. In women, relatively small elevations in prolactin will cause irregular menstrual periods or amenorrhea and galactorrhea. Most men diagnosed with a prolactinoma have some degree of pituitary failure (hypopituitarism, especially hypogonadism. Women and men also typically have a reduced sex drive (decreased libido). With larger tumors, headaches and visual loss (from compression of the optic nerves or optic chiasm) can occur. A minority of patients with large tumors may have acute hemorrhage into the tumor (pituitary apoplexy) causing relatively sudden onset of headache, visual loss, double vision, and/or pituitary failure.

Diagnosis

Prolactinomas are typically diagnosed because of problems related to high prolactin and associated hypogonadism. A prolactin level of over 150-200 ng/ml is almost always due to a prolactinoma. It is important to note that moderate elevations of prolactin (30 - 200 ng/ml) can occur from other causes, including pregnancy, the post-partum period, stress (discomfort, exercise), low thyroid function (hypothyroidism), kidney or liver failure, psychiatric medications (haloperidol, verapamil antidepressants), hypothalamic\ pituitary "stalk effect". Therefore, other types of pituitary adenomas, craniopharyngiomas, RCCs or other brain tumors may cause modest elevations in prolactin.

Treatment

Medical Therapy: In general, first line treatment for patients with a prolactinoma is medication rather than endonasal surgery. Approximately 80% of patients will have prolactin levels restored to normal with dopamine agonist therapy and many will have marked tumor shrinkage. The most commonly used agent is cabergoline (Dostinex) which has replaced bromocriptine (Parlodel) as the drug of choice given cabergoline's higher success rate and lower side-effect rate. Most women, following treatment, have a return of menses and many become fertile again. Tumor shrinkage occurs in the majority of patients, which often results in rapidly improved vision and headache resolution. Dostinex has the advantage of only being taken twice per week and has fewer side effects than bromocriptine. It has also been shown effective in patients whose prolactinomas are resistant to bromocriptine therapy. The usual starting dose is 0.5 mg twice per week. The dose may be increased up to 1.0 mg twice per week. Bromocriptine is used infrequently now for prolactinomas given the higher rate of side-effects and is usually started at a low dose (2.5 mg/day) to minimize nausea and other side effects. The dose is then increased over several days or weeks to a daily maximum usually not over 10 mgs. Recent reports indicate long-term high-dose therapy with cabergoline or bromocriptine can result in valvular heart disease. Although this risk is relatively low with standard doses of cabergoline and bromocriptine used to treat a prolactinoma, it remains a potential risk of this therapy.

Endonasal Endoscopic Surgery: Surgery is a reasonable first-line therapy in patients with micro-prolactinomas that do not invade the cavernous sinus and whose prolactin level is less than 250 ng/ml. In these patients, long term remission is generally 80-90%. Endonasal surgery is also effective for lowing prolactin levels in patients intolerant of cabergoline. For invasive microprolactinomas with prolactin levels over 1000 ng/ml, the surgical cure rate is low, averaging less than 30%. For this reason, cabergoline is usually tried first. In patients with long-standing visual loss from tumor compression, cabergoline can be tried first. However, if visual loss has occurred rapidly over a period of several two, or if there is evidence on MRI of subacute hemorrhage or degeneration in the tumor, endonasal surgery for tumor debulking is generally recommended. Because of improved tumor visualization, the endonasal endoscopic approach is rapidly becoming the preferred method for removal of most pituitary adenomas, including prolactinomas who are not responsive to cabergoline.

Radiosurgery (SRS) or Stereotactic Radiotherapy (SRT): Because most patients with prolactinomas respond so well to dopamine agonist therapy and/or surgery, radiosurgery or radiation therapy are rarely required.

For a visual tour of endonasal and keyhole surgery for brain, pituitary & skull base tumors, visit our BTC YouTube channel: *www.youtube.com/user/BrainTumorCenter*