Visual field defects secondary to Cabergoline use in a patient with pituitary tumor.

ABSTRACT

Prolactinoma is the most common functional pituitary macroadenoma. It is usually treated with dopaminergic agonists; among them, cabergoline, that decreases tumor size and consequently the symptoms caused by the tumor. An uncommon complication to this treatment is alterations in the visual field. In the majority of cases, symptoms improve with the discontinuation of the drug. Owing to the diagnostic challenge, we present the following clinical case.

Key words: Cabergoline; adverse effects; prolactinoma; visual fields; pituitary neoplasms.

INTRODUCTION

Prolactinoma is the most common functional pituitary macroadenoma. One of its clinical manifestations is damage to the visual field secondary to chiasmatic compression, observed in up to 67% of patients. Medical treatment is usually necessary to treat hyperprolactinemia secondary to functional pituitary macroadenoma. The first line of treatment is oral dopaminergic agonist, leaving surgery and radiotherapy for refractory cases or intolerance to the medication. Bromocriptine, cabergoline and quinagolide are frequently used. Dostinex® (Pfizer) is cabergoline, a dopaminergic agonist that reduces prolactin levels, decreases tumor size as well as chiasmatic compression and normalizes the visual field for up to 70% of patients. Common adverse effects reported are nausea, vomiting, constipation, orthostatic hypotension, and dizziness. Visual field defects have been described secondary to use of cabergoline.

We present a patient with this adverse reaction, with complete resolution once the dose of the medication was gradually reduced.

CASE REPORT

A 24-year-old woman was diagnosed with prolactinoma in 2010. Since then, she had been receiving treatment with oral cabergoline. In January 2011, she presented with a scotoma in the left eye, which lasted two weeks. A diagnosis of optic neuritis was made in another center. A cerebral and cervical MRI was performed, negative for multiple sclerosis. The Goldmann visual field showed an increase in the blind spot and a paracentral scotoma of the left eye. In October of the same year, while on treatment with 2.5mg of cabergoline weekly, the patient presented a new episode of central scotoma in her left eye. The eye examination showed a visual acuity of 20/20 in the right eye and 20/50 in the left. The Ishihara color vision test was 10/10 in both eyes, pupils were equal with normal reactivity, without a relative afferent pupillary defect with neutral density filter of 0.6 log. No visual misalignment and conserved ocular motility was observed. The fundus was normal, without edema of the optic disk bilaterally. A new MRI and an angiogram were conducted, which did not show any signs of chiasmatic compression or pathological optical nerves (Figure 1). Humphrey visual field showed a normal right eye. The left eye showed an increase in the blind spot with a mean defect of -3.79 dB (Figure 2). An adverse effect of cabergoline was suspected, and a decrease in the drug dosage was suggested to the general physician. At two months, the patient was receiving 2.0mg of cabergoline weekly. The eye examination revealed: visual acuity of 20/20 in the right eye and 20/25 in the left eye. The rest of the examination showed no changes.

24-2 Humphrey visual field was performed: the right eye was normal;
while the left eye still showed an increase in the blind spot (less than the previous visual field) and a mean defect of -3.41 dB. In October 2012, a year after our first evaluation, the patient was receiving 1.5mg of cabergoline weekly. Visual acuity was 20/25 in the right eye and 20/25 in the left eye. The rest of the eye examination was normal. The Humphrey 24-2 visual field was almost normal, with a mean defect of -3.26 dB in the left eye (Figure 3). Given the good evolution of the patient’s condition, it was recommended to continue gradually reducing the dose.

**DISCUSSION**

Dopaminergic agonists are often used in the treatment of prolactinomas. After reducing the tumor and improving the visual field, a deterioration of the visual field is described while the patient is being treated with dopaminergic agonists. Several mechanisms have been proposed as responsible for this complication. Some reports have shown alterations in the visual field secondary to the use of the dopaminergic agonists as a product of chiasmatic herniation in the sella turcica, documented with MRI and reversible with the discontinuation of treatment.\(^3\)\(^4\)\(^5\) In these cases, the decrease in the dosage of the medication has shown an improvement in the visual field and a decrease in tumor herniation.

A study assessed the incidence of symptomatic and asymptomatic deterioration associated with chiasmatic herniation during treatment with cabergoline in macroprolactinomas.\(^6\) Chiasmatic herniation was observed in 5 of 28 cases. In three of these cases, deterioration of the visual field was registered. In three cases, the visual field improved once cabergoline was discontinued.

Other possible explanations for the damage to the visual field with dopaminergic agonists are: direct toxicity, ischemia, reversible vasospasm and perivascular fibrosis. Visual recovery has been observed in the literature upon decreasing the dose of dopaminergic agonists, similar to what occurred in the clinical case presented.

It is recommended to maintain a high degree of caution in relation to this low-occurrence complication by maintaining controls and monitoring visual fields and images to rule out real tumor growth.