MENINGIOMA GROWTH DURING INTERFERON BETA-1A TREATMENT FOR MULTIPLE SCLEROSIS

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Multiple sclerosis (MS) is the most common demyelinating disease of the central nervous system (CNS) with a long-term course in the majority of patients. As all chronic illnesses, it is possible to expect the concomitant occurrence of other diseases, like CNS tumors. Some studies have been described CNS tumors in MS patients and we were able to find 31 cases reported, including 6 meningiomas, in English literature. Meningioma is rarely described in MS patients, particularly during treatment with Interferon beta (INFb).

We report meningioma growth in our MS patient during INFb-1a treatment, depicted by brain MRI scans. Immunohistochemistry results are also confronted with those earlier reported.

CASE

A 51 year-old woman was diagnosed as having possible MS in 1992 due to numbness and weakness in her left lower limb. Fundoscopy and the remaining neurological examination were unremarkable at that time. In 1996, she had a second bout and was submitted to her first MRI that did not show evidence of the tumor. Cerebrospinal fluid (CSF) examination revealed oligoclonal bands and a diagnosis of definite MS was established. Serial MRI scans demonstrated several small demyelinating foci in the spino-
Meningiomas are the most common primary non-glial intracranial tumor. There is a female predilection with a ratio of about 2:1 and they are also associated with neurofibromatosis type 2. The higher incidence of brain tumors in MS patients is controversial. Particularly, the concomitance of meningioma and MS has been reported, including both spinal and intracranial segments.

Interferon alpha (INFα) is currently used for the treatment of unresectable or malignant meningiomas and this medication has 2 mechanisms of action: direct tumor cell inhibition and antiangiogenic activity. INFβ has been used in order to modify the natural course of MS, impairing the trafficking of inflammatory cells through the blood brain barrier. However, its effect in meningiomas is not well understood.

Batay and Al-Merfy firstly described the possible relationship between meningioma and MS, showing the progression of meningiomas during the treatment with INFβ. They suggested that serious side effects of long-term INFβ therapy, like autoimmune diseases and autoimmune aggression with lymphocytic infiltration, might be responsible for the occurrence and enlargement of meningiomas in MS patients.

Recently, Drevelegas et al. described a patient presenting enlargement of an intraventricular meningioma during INFβ-1b treatment in a young woman with MS and suggested a possible relationship between the drug therapy and tumor growth. They argued that meningioma growth was related to positive PDGF and TGF-β receptors and the use of INFβ.

In our case, we also observed a pronounced enlargement of a frontal convexity meningioma during INFβ-1a treatment for MS 5 years after its detection in a follow-up.
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MRI. However, instead of Drevelegas et al. results, our immunohistochemistry panel was negative to all receptors tested, except for TGF-b. This result is quite contradictory, because this particular receptor has an immunosuppressive activity and one study in vitro showed an inhibitory effect in meningioma cells. Some authors demonstrated an upregulation of TGF-b in INFb treated patients, but this finding was not seen by others. We agree that the role of TGF-b in this setting is controversial. Although INFa and INFb share some biological activities, the tumor enlargement observed by Drevelegas and us suggests that INFb do not share the same antitumoral properties of INFa. This interesting suggestion, however, requires additional studies.

The mean annual meningioma growth rate in our patient (0.5 cm/year) is similar to that previously reported. This growth rate does not exceed the normal range (0.24-1.0 cm/year) expected for meningiomas.

Despite the limitations concerning this case report, our review of the literature let us to conclude that there are not enough arguments to confirm a definite relationship between meningioma growth, the presence of TGF-b receptor in the tumor cells and INFb therapy in our patient. We believe the concomitance of these common conditions should be considered merely coincidental.

REFERENCES