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Endoped Abstract

Craniopharyngioma and GH Therapy: "To Treat or Not To Treat?"

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Background and Aims

Safety concerns have been raised in relation to growth hormone (GH) replacement therapy in children with craniopharyngiomas, due to the risk of increasing the recurrence rate. Even though the growth hormone is essential for normal development, its use remains controversial in children with brain tumors, particularly craniopharyngiomas.

It is very important to analyze the pros and cons of replacement therapy with GH in children after a therapeutical approach (surgery, radiotherapy) in the light of possible recurrence risk [1–5].

Materials and Methods

In craniopharyngiomas, GH deficiency is present at the time of diagnosis in 26 to 75% of cases [1,2,4]. After treatment, either surgical, radiotherapy or both, the GH deficiency was mentioned in about 70 to 92% of patients. In this condition, the question is: is it safe to treat patients with this type of cerebral tumor with GH? Growth hormone was shown to increase serum IGF1concentrations with mitogenic and anti-apoptotic properties in vitro as well as in animal models. So, a connection was made between the GH treatment and the occurrence of cancer. At the same time, the consequences of GH deficiency in childhood are important in terms of final height and metabolic complications. Some studies suggest that a positive immunohistochemical expression of GH receptor in tumor tissue may indicate a high probability of recurrence in case of GH treatment. They even speculated that each brain tumor may have its specificity in GH receptor expression. Almost all children with craniopharyngioma are GH deficient but some of them will have a normal growth rate after the surgical treatment. This fact does not indicate the presence of normal GH secretion and a future normal growth, and that way, the substitutive therapy is necessary. The improvement in growth velocity, adult height and the amelioration of body composition, prevention of bone

mineral loss and cardiovascular morbidity are very important in the evolution, quality of life and survival of children with craniopharyngioma.

Results

Current meta-analysis indicated that physiologic treatment with GH in GH-deficient children with craniopharyngioma has a lower risk of tumor recurrence/progression in comparison with patients without GH replacement therapy. In a multinational "KRANIOPHARYNGEOM 2000" study, GH therapy did not significantly affect tumor relapse and progression rates. Moreover, in a PATRO international study, only one patient with craniopharyngioma presented with an increase in the residual tumor, and treatment was temporarily interrupted [3,5]. In our study (from a short series of 9 children with only two GH-treated patients), one patient experienced minor growth of the residual tumor.

Conclusions

There are conflicting opinions regarding whether there is an association between GH substitution therapy and the risk of recurrence in craniopharyngioma. A conclusive study exclusively analyzing the effect of GH substitution on the recurrence of pediatric craniopharyngiomas has yet to be conducted and there are no sufficient data to indicate that this type of therapy may promote craniopharyngioma progression. Further studies are necessary in order to have precise data.

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