ATENOLOL, INFANTILE HEMANGIOMA AND SELF-GRATIFICATION

**Key words** Atenolol, infantile hemangioma and self-gratification.

**Case report.** A 10-month-old little girl presented from the age of 3 months a tumor of the right parotid region (Fig. 1) that in the following months reached the size of a tangerine. Physical examination showed a bluish discoloration of the tumor that was warm to the touch and compressible. We diagnosed deep infantile hemangioma, decided to treat it because the hemangioma continued to grow and, due to the presence of a biparental history of asthma, we chose atenolol. During the day hospital a test dose of 1.5 mg/kg of atenolol was given. The day after the therapy started with a single morning dose of 0.5 mg/kg for one week, then increased to 1 mg/kg for 7 days and finally at a dose of 1.2 mg/kg. After 2 months of treatment the hemangioma was almost completely regressed (Fig. 2); however, the mother reported that from the onset of atenolol, although not remembering whether shortly before or shortly after, the girl presented episodes lasting a few seconds of overtone, hyperextension and lifting of the lower limbs (Fig. 3, Video). During these crises the little girl did not lose consciousness, was alert and responsive, laughed and played like always.

The mother attributed the crises to atenolol and the day after suspended the drug. The child was admitted to a Department of Pediatrics, where the crises, three days after the suspension of atenolol, continued; however, the EEG showed a normal brain activity even during the crisis. She was then admitted to a Department of Child Neurology, where, because of the child’s behavior during the crisis and the normal EEG, a diagnosis of maneuvers of self-gratification was made. After 7 days the atenolol was taken again and the child continued to hire it.

After the propranolol revolution of 2008 (7) other beta-blockers have been used as anti-angiogenic factors in an attempt to decrease the side effects of propranolol, both those related to its activity on beta 2 receptors as hypoglycemia, bronchospasm, and those related to the lipophilicity of propranolol and its ability to cross the blood-brain barrier, such as sleep disorders and possible long-term effects on memory and cognitive activity (6). Atenolol is a beta 1 selective beta-blocker medication then in normal doses does not act on the bronchial muscles.

A fundamental difference compared to propranolol is its strong hydrophilicity that significantly reduces its penetration into the brain. After oral administration it is absorbed and enters the bloodstream without being...
metabolized in the liver unlike propranolol, whose hepatic metabolism, significantly different from subject to subject, could affect its plasma concentration. Another difference compared to propranolol is its longer plasma half-life - 5-8 hours - that allows once-daily dosing.

So far in the literature (1, 2, 3, 4, 5, 8, 9, 10, 11) were treated 213 cases of infantile hemangioma with atenolol at the average dosage of 1-1.5mg kg / day as a single daily administration. In all cases in which atenolol and propranolol were compared, atenolol showed equivalent efficacy, better compliance (single dose) and reduced side effects or similar incidence of them as compared to propranolol.

The point in favor of atenolol are administration once a day and minor side effects related to low activity on beta 2 receptors and no exceedance of the blood-brain barrier; the points in favor of propranolol are is more frequent use in children and increased vasoconstrictor peripheral activity related to its action on beta 2 receptors.

References


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