EXPERIENCE OF USING OF TRANEXAMIC ACID IN PATIENTS WITH JUVENILE EPIPHARYNGEAL ANGIOFIBROMA

The article discusses effectiveness of using tranexamic acid to reduce the hemorrhage volume during surgery, its prevention in postoperative period in patients with juvenile epipharyngeal angiofibroma (JEA). The author argues effectiveness of using tranexamic acid in pre-, intra- and postoperative periods for reducing blood volume loss during surgery, prevention of it after surgery in the complex treatment of patients.

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Juvenile epipharyngeal angiofibroma (JEA) is attributed to fibromatoses and is benign neoplasm.

JEA is relatively rare disease in the structure disorders of ENT organs. One case of JEA occurs among 12-16 thousands of hospitalized otorhinolaryngologic patients (Yablonskiy, 1999). At the same time, juvenile angiofibroma is the most widespread benign tumor of pharynx. The frequency of occurrence of JEA is 1:5000 - 1:60000 amongst all otorhinolaryngologic patients and about 0.05% out of all benign tumors of head and neck (Daihes et al., 1995; Shaheen, 1987; Tewfik et al., 1999).

JEA, the morphologically being benign tumor, clinically behaves as malignant neoplasm. While growing the tumor not only expands the surrounding tissues, but surmounts all obstacles on its way, destroying cartilages and bones.

Treatment tactics of JEA depends on its size. The main treatment method is surgery. At present depending on localization of the main mass of the tumor in the nasal part of pharynx, nasal cavity and paranasal sinuses, its proliferation to pterygopalatine and infratemporal fossa, or intracranial, different operative approaches are being used. (Pogosov et al., 1987; Timen et al., 2001; Tewfik et al., 1999; Browne and Jakob, 2000; Bayonne et al., 2007).

JEA is characterized by diversity of clinical presentations, but one of its main symptoms is nasal hemorrhage. The hemorrhage often is the most dangerous life threatening intra- and postoperative complication. There are proposed various methods of its prevention and treatment. Number of publications on researches is devoted to this issue. Suggested various methods of prevention of nasal hemorrhage during surgery include endovascular, especially selective occlusion in postoperative period, application of controlled hypotension and temporary or permanent ligation of external carotid artery.

Nowadays, application of different haemostatic drugs of local and systemic administration during surgery and in postoperative period is the most widely used method to prevent hemorrhages (Chistiakova, Yablonskiy, Mylnikov, 2000; Kvashenkova and Vasilieva, 2004).

The goal of this survey was evaluation of effectiveness of using tranexamic acid to reduce the hemorrhage volume during surgery, its prevention in postoperative period in patients with JEA.

22 male patients, aged between 11-22 years, with first stage JEA were examined and treated in the 1st Clinic of Samarkand Medical Institute during 2004-2009. All patients underwent otorhinolaryngologic checkup, general examination of all organs and systems, general clinical laboratory tests and instrumental examinations, CT scan of skull. For
evaluation of extent of the tumor we used the Pogosov classification (Pogosov et al., 1987).

The 1st stage of JEA was identified in 14 patients and the 2nd stage of JEA - in 8. All patients underwent surgical treatment and all of them were operated for the first time. Transoral approach under endotracheal anesthesia was used in all patients. Patients were divided into 2 groups accounting the usage of haemostatic drugs.

**TABLE 1. INDICATORS OF EFFECTIVENESS OF BLEEDING CONTROL DURING SURGERY AND PREVENTION OF HEMORRHAGE IN POSTOPERATIVE PERIOD**

<table>
<thead>
<tr>
<th>Comparison criteria</th>
<th>First group (N= 9)</th>
<th>Second group (N=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Time of full stop of hemorrhage after tamponade, min</td>
<td>11±0.9</td>
<td>5.9±0.7*</td>
</tr>
<tr>
<td>2. Hemorrhage volume during surgery, ml</td>
<td>820.0±20.1</td>
<td>544.0±41.2*</td>
</tr>
<tr>
<td>3. Frequency of hemorrhage during first 24 hours after removal of the tumor, %</td>
<td>22.2</td>
<td>0*</td>
</tr>
<tr>
<td>4. Time of removal of posterior tampon after surgery, days</td>
<td>3.4±0.9</td>
<td>2.0±0.2*</td>
</tr>
<tr>
<td>5. Frequency of hemorrhage after removal of posterior tampon, %</td>
<td>33.3</td>
<td>0</td>
</tr>
<tr>
<td>6. Frequency of repeated posterior tamponade, %</td>
<td>22.2</td>
<td>0*</td>
</tr>
</tbody>
</table>

Note: * Confidence index of the compared indicators (P<0.05)

The first group consisted of 9 patients (40.9%) whose haemostatic treatment during surgery and in postoperative period was provided using ε-aminocapronic acid and ethamsylate. Only 2 patients received blood transfusion during surgery and in postoperative period.

13 patients were included into the second group (59.1%). Day before surgery and 2 hours before the operation the patients received intravenously 5.0 ml of solution, containing 500 mg of tranexamic acid, diluted in 10.0 ml of 0.9% solution of natrium chloridum. During the operation there was performed drip transfusion of 10.0 ml tranexamic acid solution of the same concentration, added to 400.0 ml of 0.9% solution of natrium chloridum. None of the cases required blood transfusion.

Local hemostasis was performed through combining anterior and posterior tamponade. In all cases tampons were removed after preliminary soaking with 3% hydrogen peroxide solution. Preliminarily, in the morning of the day of tampons removal, 5.0 ml of 500 mg solution of tranexamic acid had been injected slowly intravenously.

Evaluation of effectiveness of the applied methods in the comparison groups have been performed by 6 criteria presented in the table below. There was significant difference by all 6 criteria between the compared groups. Specifically, in the patients of the 2nd group bleeding stopped 1.89 times earlier and the tampons were removed 1.7 times earlier than in the 1st group.

The results have shown effectiveness of bleeding prevention in patients of the 2nd group. This was conditioned by using tranexamic acid before and during surgery to provide systemic effect in the 2nd group; this acid has much stronger haemostatic effect than aminocapronic acid.

Therefore, the results have demonstrated effectiveness of use of tranexamic acid in pre-, intra- and postoperative periods for reducing the volume of blood loss during surgery, prevention of it after surgery in the complex treatment of patients with JEA.

**References**

Bayonne, E., Kania, R., Sauvaget, E. et al., 2007. “Removal of cranial extension of juvenile nasopharyngeal angiofibroma by transfacial approach,” European Archives of Oto-Rhino-Laryngology and Head & Neck,


