Pediatric Vascular Malformations: A Single Center Experience - #1468

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Disclosures

• I have no conflicts of interest to disclose
Introduction

• Pediatric vascular malformations are a rare finding in children; however, are the most common reason for stroke in the pediatric population.

• Can have a catastrophic effect on the developing child.

• Previously, these lesions were typically treated with open surgery only. In the last 20 years, with the advent of more advance endovascular therapies, AVMs, aneurysms and fistulas are now treated with endovascular treatment as well.
Methods

• Children 18 years of age or younger that were seen or treated for intracranial/cerebral vascular malformations at our institution, Hamilton Health Sciences, between January 1, 2002 and December 31, 2017 were retrospectively identified.

• The patients were subdivided into different groups depending on the type of vascular malformation identified (AVM, dAVF, pAVF, aneurysm).

• We then identified the various treatment modalities used (conservative, endovascular, open surgical, radiosurgery or mixed) and identified the cure rate associated with the various treatment options as well as long term outcomes.
Outcomes Following Treatment

Combined treatment with open surgery and endovascular treatment leads to the best outcome in terms of lesion obliteration whereas endovascular treatment will lead to a large number of patients having a residual lesion requiring further treatment.
# Neurological Outcomes

<table>
<thead>
<tr>
<th>Residual Symptoms</th>
<th>3 months</th>
<th></th>
<th>12 months</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Absolute Number</td>
<td>Percentage</td>
<td>Absolute Number</td>
<td>Percentage</td>
</tr>
<tr>
<td>None</td>
<td>14</td>
<td>50.00%</td>
<td>8</td>
<td>44.44%</td>
</tr>
<tr>
<td>Hemiparesis/Weakness</td>
<td>3</td>
<td>10.71%</td>
<td>2</td>
<td>11.11%</td>
</tr>
<tr>
<td>Visual Deficit</td>
<td>4</td>
<td>14.29%</td>
<td>2</td>
<td>11.11%</td>
</tr>
<tr>
<td>Seizure</td>
<td>3</td>
<td>10.71%</td>
<td>1</td>
<td>5.56%</td>
</tr>
<tr>
<td>Speech Deficit</td>
<td>5</td>
<td>17.86%</td>
<td>2</td>
<td>11.11%</td>
</tr>
<tr>
<td>Headache</td>
<td>4</td>
<td>14.29%</td>
<td>3</td>
<td>16.67%</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>21.43%</td>
<td>6</td>
<td>33.33%</td>
</tr>
</tbody>
</table>

A large portion of patients had no residual symptoms however the most common symptoms in the long term were headaches (16.7%). The majority of the patients had improvement in their symptoms between 3 and 12 months.
Conclusion

• In this series of patients, we found that pediatric vascular malformations can be treated in a variety of different ways, but that combined approaches using endovascular along with open surgical techniques provided the best outcome for patients in terms of radiological obliteration and long term deficits children were rare.

• During our combined multidisciplinary clinic patients are seen by both the neurosurgeon and the endovascular surgeon in order to determine the best steps of treatment for each patient. The imaging and clinical findings of the patient are reviewed and after discussion with the team a treatment approach is decided upon and presented to the patient/patients family.