TARGET AUDIENCE: All Canadian health care professionals.

OBJECTIVE:
To provide consensus-based standardized care for children with acute sinovenous thrombosis (cavernous sinus venous thrombosis [CSVT]) and arterial ischemic stroke (AIS).

ABBREVIATIONS:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AIS</td>
<td>arterial ischemic stroke</td>
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<tr>
<td>ASA</td>
<td>acetyl salicylic acid</td>
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<tr>
<td>CSVT</td>
<td>cavernous sinus venous thrombosis</td>
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<tr>
<td>CT</td>
<td>computed tomography</td>
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<tr>
<td>CTV</td>
<td>computed tomography venogram</td>
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<td>LMWH</td>
<td>low-molecular-weight heparin</td>
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<td>MRI</td>
<td>magnetic resonance imaging</td>
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<tr>
<td>MRV</td>
<td>magnetic resonance venography</td>
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<tr>
<td>PFO</td>
<td>patent foramen ovale</td>
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<td>UFH</td>
<td>unfractionated heparin</td>
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BACKGROUND:
There are no clinical trials in the treatment of pediatric stroke. However, it is known that neonates with cardiac disease and older infants and children with AIS have a 25-50% risk of recurrence after an index stroke if not treated with either acetyl salicylic acid (ASA) or anticoagulants. In CSVT, propagation of the existing thrombus is seen without anticoagulation. Five sets of consensus-based published guidelines recommend standardized care for pediatric stroke modified from adult stroke treatments. These are based on pediatric stroke cohort and case-control studies, which suggest adverse outcomes without treatment, and support the safety of antithrombotic treatments.

AGENTS AND DOSING:

Neonatal AIS:
For acute recurrent stroke or for acute stroke and cardiac condition, treat below doses for older children; otherwise, do not initiate antithrombotic treatment.

Persistent Significant Thrombophilia + Patent Foramen Ovale (PFO):
ASA 3-5 mg/kg per day until PFO closes.
Neonatal CSVT:
Low-molecular-weight heparin (LMWH) or unfractionated heparin (UFH) for 6 weeks to 3 months unless contraindicated; otherwise, monitor for propagation.

Childhood AIS:
LMWH or UFH initially at full treatment dose or ASA initially 3-5 mg/kg per day.
Maintenance for arterial dissection, severe cardiac disease, severe thrombophilia or recurrent stroke: ASA, LMWH or warfarin for initial high-risk months, then, if deemed safe, reduce to ASA 3-5 mg/kg per day.
Maintenance otherwise: ASA 3-5 mg/kg per day decreased in subsequent years to 1-3 mg/kg per day. Treat long-term > 10 years unless contraindicated.

Childhood CSVT:
LMWH or UFH initially, then LMWH or warfarin for 3-6 months unless there are contraindication; otherwise, monitor for propagation.
For all categories, individualize care with treating teams. Anticoagulation may not be feasible if contraindications exist.

MONITORING:

Antithrombotic Medication:
Monitoring is not required for patients taking ASA. Patients taking anticoagulants should be monitored as for other indications.

Neuroimaging Monitoring:
If anticoagulation has been initiated for acute stroke, it is suggested that a computed tomography (CT) scan or magnetic resonance imaging (MRI) be performed on day 3 to investigate for sub-clinical bleeding. If no anticoagulation has been initiated for acute CSVT, perform computed tomography venography (CTV) or magnetic resonance venography (MRV) on day 5 to investigate for sub-clinical clot propagation.

SPECIAL CONSIDERATIONS:
Usually there is no bolus for UFH in acute stroke. Pediatricians with expertise in stroke should manage, where possible, pediatric patients with CSVT.

REFERENCES:


Please note that the information contained herein is not to be interpreted as an alternative to medical advice from your doctor or other professional healthcare provider. If you have any specific questions about any medical matter, you should consult your doctor or other professional healthcare providers, and as such you should never delay seeking medical advice, disregard medical advice or discontinue medical treatment because of the information contained herein.