STUDY OF CLINICAL PROFILE OF CEREBRAL VENOUS SINUS THROMBOSIS IN KARNATAKA INSTITUTE OF MEDICAL SCIENCES, HUBLI

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ABSTRACT

BACKGROUND

Patients with Cortical venous thrombosis present with varied clinical features and often missed in a plain axial CT Brain. Hence identifying risk factors is important in such patients so that appropriate imaging and early treatment can be initiated. The present study is directed in identifying most common risk factors in patients with CVT in a tertiary care centre.

Aim of Study- To study the clinical profile of patients with CVT in a tertiary care hospital in north Karnataka.

MATERIALS AND METHODS

78 patients with CVT diagnosed based on imaging aged more than 13 years were included in the study. Each patient underwent necessary investigations including imaging. Detail evaluation of risk factors was done based on history collected and lab parameters.

Sample Size- 78.

Type of Study- Single centre observational study.

RESULTS

Cerebral venous sinus thrombosis is most common in young population. Most common affected age group is 21-40 years with mean age of 32±11 years. Incidence of cerebral venous sinus thrombosis is more in males when compared to females. Most common mode of presentation was seizures followed by headache. Most common risk factor for cerebral venous sinus thrombosis is alcohol in males followed by dehydration, peripartum state in females, hyperhomocysteinaemia and tobacco use. Cerebral venous sinus thrombosis was more common following first pregnancy when compared to subsequent pregnancies. Cerebral venous sinus thrombosis in peripartum state was most commonly seen between 7-42 days of delivery. Superior sagittal sinus is the most common sinus involved in cerebral venous Thrombosis. Multiple sinus involvement is associated with greater case fatality rate. Coma at the time of presentation, cerebral venous sinus thrombosis with midline shift, deep cerebral venous sinus thrombosis are predictors of poor outcome in cerebral venous sinus thrombosis.

CONCLUSION

In our study CVT affected the most productive age group of patients and most common risk factor could be reduced by health education and primary prevention.

KEYWORDS

Cortical Venous Thrombosis; Risk Factors; Serum Homocysteine, Postpartum.

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BACKGROUND

Cerebral veno-sinus thrombosis involves the thrombosis of the cortical veins and the draining venous sinuses, either alone or in combination. Incidence is 3-4 cases per million. This distinct condition frequently affects young adults and children. Puerperal CVT has been reported to be 10-12 times more frequent in India than the West.1

The presenting features of CVT usually depend on the sinuses involved, place of occlusion, involvement of cortical veins and the presence of collaterals.

Mode of onset is acute, subacute or chronic. CVT has four patterns/syndromes - syndrome of acute motor deficit, syndrome of increased intracranial tension without motor weakness, syndrome of cavernous sinus thrombosis, syndrome of deep venous thrombosis.2

The common symptoms include headache, focal seizures, vomiting, focal deficits and fever. The most frequent symptom is headache in over 90% of patients. Seizures occur in about 40-70% of patients. Neurologic signs develop in half of patients with sinus thrombosis and include monoparesis, hemiparesis or paraparesis.
The current study is undertaken to study the clinical profile of cerebral venous thrombosis in KIMS, a tertiary health care centre in Hubli.

**MATERIALS AND METHODS**
- Total of 78 patients were included in the study who were diagnosed with cerebral venous sinus thrombosis using appropriate imaging.
- The study period extended between December 2014 to November 2015.
- All patients with CVT during this period were included in the study.

**Inclusion Criteria**
- Patients aged more than 13 years with CVT.

**Exclusion Criteria**
- Ischemic or haemorrhagic stroke not because of CVT.
- Transient ischemic attack
- Extradural haemorrhage
- Subdural haemorrhage
- Aneurysmal bleed
- Subarachnoid haemorrhage.

**Study Design**
- Single centre, observation study.

**Statistical Methods**
The continuous variables will be summarized as mean [standard deviation]. Categorical variables will be summarized as proportions. The difference between categorical variables will be analysed using chi-square test and for continuous variables T-test will be used.

**Investigations**
Following investigations were done for each patient.
Haemoglobin, Total and differential count, ESR, Platelet count, Bleeding time, Clotting time, PT-INR, aPTT, Blood urea, Serum creatinine and electrolytes, Urine routine, ECG, 2D ECHO, Chest x ray, RBS, Lipid profiles, CT scan of Brain, MRI Brain with MR venogram LFT.

**RESULTS**
The study included a total of 78 patients with CVT. It was noted that the frequency was highest in the most productive age group that is patients between 20 to 30 years of age which included close to 45%.

<table>
<thead>
<tr>
<th>Age (in Years)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; =20</td>
<td>9</td>
<td>11.5</td>
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<tr>
<td>21-30</td>
<td>35</td>
<td>44.9</td>
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<tr>
<td>31-40</td>
<td>16</td>
<td>20.5</td>
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<tr>
<td>41-50</td>
<td>12</td>
<td>15.4</td>
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<tr>
<td>51-60</td>
<td>5</td>
<td>6.4</td>
</tr>
<tr>
<td>&gt;=61</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>78</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Table 1. Age Distribution of Patients Admitted with Cerebral Venous Sinus Thrombosis**

Out of 78 cases, 42 patients were male and 36 patients were female.
Out of 78 patients with cerebral venous sinus thrombosis, 31 (39.8%) patients were alcoholics and 17 (21.8%) patients had habit of tobacco use.

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prevalence of risk factors in our population. The mean age of presentation in our study is comparable with several other studies conducted in different parts of our country.3,4,5

In present study the risk factors for CVT were alcohol 39.8%, tobacco use 21.8%, pregnancy and puerperium 33.33%, dehydration 34.6%, anaemia 68%, polycythaemia 7.7%, hyperhomocysteinaemia 23.1% which correlates with studies done by Zouhayr Souirti et al,3 Mohammad Wasay et al,6 Umesh G Rajoor et al,7 Virendra C. Patil et al.8 The differences in the incidence of risk factors in above studies and present study may be due to the study population, regional and cultural differences.

In our study it was found that superior sagittal sinus thrombosis was most commonly involved which was consistent with other studies.9,10 The severity of clinical presentation does not depend on the burden of risk factor alone, it depends on factors such as extent of sinus thrombosis, presence of collaterals, rapidity of onset, and the time of presentation.

Although the advances in imaging modalities have made it possible for better diagnosis and treatment of CVT, there is no much data regarding subtle presentation of patients with risk factor for CVT. Most of the patients with either inherited hypercoagulable state or acquired disorders present with an acute stroke, providing no window for screening of these patients. The evaluation of each patient with CVT for inherited hypercoagulable state might not be possible in our setting because of lack of resources. Thus, it mandates us to look into the avoidable risk factors by primordial prevention and primary prevention in patients with risk factors such as anaemia, dehydration, puerperium and alcohol. This can reduce the overall burden of the disease and also reduce mortality.

Our study also has a few limitations as it is a single centre study. Also, being an apex institute catering large population it may project a higher incidence however the distribution of risk factors is consistent with several other studies.

CONCLUSION
Cerebral venous sinus thrombosis is most common in young population. Most common affected age group is 21-40 years with mean age of 32 ± 11 years.

Incidence of cerebral venous sinus thrombosis is more in males when compared to females.

Most common mode of presentation was seizures followed by headache.

Most common risk factor for cerebral venous sinus thrombosis is alcohol in males followed by dehydration, peripartum state in females, hyperhomocysteinaemia and tobacco use.

Cerebral venous sinus thrombosis was more common following first pregnancy when compared to subsequent pregnancies.

Cerebral venous sinus thrombosis in peripartum state was most commonly seen between 7-42 days of delivery.

Superior sagittal sinus is the most common sinus involved in cerebral venous Thrombosis.

Multiple sinus involvement is associated with greater case fatality rate. Coma at the time of presentation, cerebral venous sinus thrombosis with midline shift, deep cerebral venous sinus thrombosis are predictors of poor outcome in cerebral venous sinus thrombosis.

REFERENCES


