

Clinical profile of cerebral venous sinus thrombosis

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Abstract

Cerebral venous sinus thrombosis (CVST) is relatively uncommon cause of stroke, but its clinical presentation is variable. We have studied 30 cases of cerebral venous sinus thrombosis admitted during period between June 2015 to June 2017. 50% of cases were between age of 18-30 years. 16 i.e. 53.33% of cases were female while rest were male. The mean age of female patients is 34.94 years whereas that of males is 40.64 years in the present study. In the present study, 19 patients (63.33%) were conscious and 8 cases (26.66%) were drowsy and 1 patient (3.33%) was comatose at the time of presentation. The most common symptom is headache in 73.33% cases followed by focal deficits in 56.66% cases. In the present study, hemiparesis was present in 40% and papilloedema in 33.33% of the patients. Hyperhomocystinemia was the most common risk factor identified in 35.71% cases. In the present study 2 patients died out of 30 patients.

Key words: Cerebral venous sinus thrombosis, hyperhomocystinemia, papilloedema.

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INTRODUCTION

The credit of first description of thrombosis of the cerebral veins and sinuses goes to the French physician Ribes, who in 1825 observed thrombosis of the sagittal sinus and cerebral veins in a man who had suffered from seizures and delirium. Cerebral venous system can be divided into two basic components.

A) Superficial System

The superficial system consist of sagittal sinuses and cortical veins and these drain superficial surfaces of both cerebral hemispheres.

B) Deep System

The deep system comprises of lateral sinus, straight sinus and sigmoid sinus along with draining deeper cortical

veins. Both these systems mostly drain themselves into internal Jugular veins. CVST is rare condition, with an estimated 3-4 cases per million annual incidence in adults. While it may occur in all age groups, but it is most common in the third decade and mostly 75% are female. CVST is a relatively rare subtype of stroke. In young to middle aged adults, CVST is much more common in women than men with a ratio of approximately 3 to one. This skewed gender ratio is usually attributed to gender-specific risk factors, especially oral contraceptives, and to a lesser extent pregnancy, puerperium, and hormone replacement therapy. Symptoms and signs of sinus thrombosis are depend on two different mechanisms: thrombosis of the cerebral veins, with local effects caused by venous obstruction, and thrombosis of the major sinuses, which causes intracranial hypertension. In the majority of patients, these two processes occur simultaneously. The confirmation of a diagnosis of CVST is reliant on demonstration of the thrombus by neuroimaging. Non-invasive imaging by magnetic resonance venography is used in preference to cerebral angiography. Anticoagulation remains main treatment. The optimal duration of oral anticoagulation (AC) after the acute phase is unclear.

MATERIALS AND METHODS

30 consecutive patients admitted in Government hospital Sangli between June 2015 and June 2017 with a confirmed diagnosis of Cerebral venous sinus thrombosis were taken up for the study and followed until discharge from the hospital or death. Meticulous history, clinical examination, laboratory investigations were carried out in all cases of cerebral venous sinus thrombosis. Cerebral venous sinus thrombosis was confirmed by CT scan or conventional MRI or MR Venogram. The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1 and Systat 12.0 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

Inclusion Criteria

All Patients suspected to have Cerebral venous sinus thrombosis were evaluated but only those with confirmed diagnosis (based on neuroimaging) of cerebral venous sinus thrombosis were taken up for the study.

Exclusion Criteria

Age below 18 years and arterial infarcts

OBSERVATIONS AND RESULTS

Table 1: Age wise distribution of patients

Age(yrs)	No. of patients	Percentage
18-30	15	50
31-40	6	20
41-50	3	10
51-60	1	3.33
61-70	3	10
71-80	2	6.67

Table 2: Gender wise distribution of patients

Gender	No. of patients	Percentage
Male	14	46.67
Female	16	53.33
Total	30	100

Table 3: Level of consciousness

Level of consciousness	No. of patients	Percentage
Concious	19	63.33
Drowsy	8	26.66
Stuporous	2	6.67
Comatose	1	3.33
Total	30	100

Table 4: Symptoms at presentation

Symptom	No of patients	Percentage
Headache	22	73.33
Focal deficit	17	56.66
Convulsion	14	46.67
Vomiting	13	43.33
Altered sensorium	11	36.67
Fever	4	13.33
General weakness	2	6.67

Table 5: Clinical Signs at presentation

Clinical Signs	No of patients	Percentage
Hemiparesis	12	40
Pallor	11	36.67
Pappiloedema	10	33.33
Cranial nerve involvement	9	30
Dysphasia	3	6.67

Table 6: Risk factors

Risk Factor	No of patients	Percentage
Hyperhomocysteinemia	5	35.71
Protein S deficiency	3	21.42
Protein c deficiency	1	7.14
APLA syndrome	1	7.14
Anemia	2	14.28
Sec polycythemia	1	7.14
Malignancy	1	7.14
No cause found	5	35.71

Table 7: Mortality

Status	No of patients	Percentage
Alive	28	93.33
Dead	2	6.67
Total	30	100

DISCUSSION

Cerebral venous sinus thrombosis (CVST) is relatively uncommon cause of stroke.. CVST involves the thrombosis of the cortical veins and the draining venous sinuses, either alone or in combination. It generally affects young to middleaged patients, and it is more commonly seen in women. Comparing the age group involved, 20-40 years was the commonest age group involved in various series (Mehta SR *et al.*, 77.8% and Ameri *et al.*, 61%). The present study also showed similar findings with 56.67% in the same age group (20-40), with mean age of onset 37.6 years. Male to female ratio in various studies revealed, Mehta SR *et al* 1:1.4, Daif *et al* is 1:1, Bousser *et al* (1985) is 1.24:1. In the present study, M:F ratio is 1:1.14. The present study is comparable to Daif *et al.* Headache was the most common symptom in the present study accounting for 73.3% of patients. The present study is comparable with most other studies like Bousser *et al.* with 74%, Mehta SR *et al.* with 77.8% and Strolz *et al.* with 73.4%. In the present study, 46.67% of cases had seizures which is comparable with Strolz *et al.* The manifestations that indicate the cerebral cortical involvement are convulsions and paralysis; at times seizures are heralding symptoms and should arouse the suspicion of diagnosis. In the present study, 56.66% of patients had focal deficits. Among them 12 had hemiparesis, 2 had diplopia and 2 had dysphasia. In the present study, 36.67% of patients had altered level of consciousness which include drowsy, stuporous and

comatose patients and this is comparable with Storz *et al.* In the present study, 33.33% of patients had papilloedema. Similar observations were noted with Storz *et al.* and Kumar S *et al.* who also had papilloedema in 30.3% and 32% respectively. Predisposing underlying factors can be identified in up to 80% of patients of CVST. In the present study no risk factor could be identified in only 9 patients (30%) similar to other studies. Anemia and puerperum were the most common risk factors identified in females, whereas hyperhomocysteinemia and protein S deficiency were the most common risk factors in males. Only two of the sixteen female patients were on OCP or HRT at the time of presentation which was far less as compared to western data. More than one risk factor was sometimes present in the same patient. Treatment of CVST ranges from observation to anticoagulation. In our study all the 30 patients were treated with anticoagulants. The recent ISCVT study, performed in the era of modern neuroimaging, LMWH administration, and endovascular intervention, reported much lower mortality rates (8–14%) and significantly better outcome. Overall outcome is good with 67.86% of the patients having complete recovery at the time of discharge and a mortality rate of 6.67%.

CONCLUSION

The present study emphasizes that CVST is not an uncommon condition. Clinical presentation is extremely varied and symptoms may evolve over hours to few weeks. Neuroimaging plays a pivotal role in diagnosis of CVST. MRI with MRV is the current diagnostic modality of choice. Evaluation for an underlying procoagulant state may be rewarding for further prevention with long term anticoagulation. Management with unfractionated heparin or LMWH and oral anticoagulants is appropriate. Surgical decompression is helpful in the case of

continuing deterioration, inspite of maximum medical management. Contrary to ischemic arterial stroke, CVST could be described as an “all or nothing” disease with good short and long term outcomes when the acute phase of illness has been survived.

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