

Study of etiology of cerebral venous thrombosis in patients with cerebral venous thrombosis - A retrospective study

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Abstract

Background: Cerebral venous thrombosis has varied clinical presentations, etiological factors, imaging findings, and outcome. Etiological factors are usually divided into acquired risks and genetic risks. **Aim:** To find out the etiological factors of CVT in CVT diagnosed patients. **Material and Methods:** The case records of patients of CVST will be retrieved from the department, the data will be collected through the case record of patient with CVST the records of those cases fulfilling the inclusion and exclusion criteria will be analyzed retrospectively in terms of causes, site of CVST and complication. **Results:** Out of 30 patients, in 8 patients the cause was unknown and the alcohol was the commonest cause for the CVT which was seen in 05 patients (16.66%) and the next common were dehydration and postpartum, each constituted 4 patients (13.33%). **Conclusion:** CVT is multifactorial, and in most of the cases the cause is unknown, however, identification of one risk factor should not deter the clinician from searching for more causes.

Key Words: Cerebral venous thrombosis, etiology, alcohol, postpartum.

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INTRODUCTION

Cerebral venous thrombosis (CVT) accounts for 0.5-1% of all strokes and usually affects young to middle-aged adults.¹⁻³ It has varied clinical presentations, etiological factors, imaging findings, and outcomes. CVT may present with simple headache to severe neurologic dysfunction, depending on degree of intracranial pressure increases, resultant venous infarction or hemorrhage, and locations affected.^{4,5} Symptoms may reflect cerebral sinus or cortical vein thrombosis. Etiological factors are usually divided into acquired risks (e.g. surgery, trauma,

pregnancy, puerperium, antiphospholipid syndrome, cancer, exogenous hormones) and genetic risks (inherited thrombophilia). Drugs like oral contraceptives (OCs), steroids, hormone replacement therapy, and oncological treatments have been implicated in the causation of CVT. Infections such as otitis, mastoiditis, sinusitis and meningitis, collagen-vascular diseases and hematologic conditions are well known etiological factors.⁶ In present study an attempt was made to find out the etiological factors of CVT in CVT diagnosed patients.

MATERIAL AND METHODS

Sources of data: The data will be collected by going through the case records of patients of CVST, which will be retrieved from the department and these cases will be included and studied. Duration of study – 3 years approximately 30 cases.

Inclusion Criteria: All cases referred for MR Venogram who diagnosed to be having cerebral venous sinus thrombosis attending BIMS Hospital Belagavi, over a period of one year.

Exclusion Criteria

- No exclusion criteria
- A complete clinical history of patients was taken from case records which included name, age, sex, occupation and presenting complaints.

RESULTS

In the present study the peak incidence of cerebral venous thrombosis was seen in the age group of 21 to 40 years in both males and females (50% and 55.55% respectively), next common in the age group of 41-60 years in males (33.33%).

Table 1: Distribution of patients according to age and sex

Age (Years)	Males		Females		Total No. of Cases
	Cases	%	Cases	%	
0 – 20	01	08.33	04	22.22	05
21-40	06	50.00	10	55.55	16
41-60	04	33.33	04	22.22	08
>61	01	08.33	00	00	01
Total	12	100	18	100	30

Headache was the commonest clinical feature seen in 09 patients (30%) and the next commonest clinical features were seizures in 07 patients (23.33%) and hemiparesis/focal neurological defects in 05 patients (16.66%).

Table 2: Distribution of clinical features in patients with CVT

Clinical Feature	Cases	Percentage (%)
Headache	09	30.00
Hemiparesis / Focal Neurological Defect	05	16.66
Giddiness	03	10.00
Seizures	07	23.33
Vomiting	03	10.00
Coma	01	3.33
Raised Intracranial Tension	01	3.33
Cranial Nerve Palsy	01	3.33
Total	30	100%

Out of 30 patients, in 8 patients the cause was unknown and the alcohol was the commonest cause for the CVT which was seen in 05 patients (16.66%) and the next common were dehydration and postpartum, each constituted 4 patients (13.33%).

Table 3: Distribution of patients depending on the cause in patients with CVT

Cause	Cases	Percentage (%)
Unknown	08	26.66
Postpartum	04	13.33
Mastoiditis	02	6.66
Dehydration	04	13.33
OC Pills	01	3.33
Intracranial SOL	01	3.33
Fever	02	6.66
Malaria	02	6.66
Alcohol	05	16.66
Sepsis	01	3.33
Total	30	100%

DISCUSSION

Cerebral venous thrombosis is an elusive diagnosis because of its non-specific presentation and its numerous predisposing causes.¹ Prothrombotic states in inherited diseases, such as deficiency of antithrombin III or proteins C and S, have been implicated; and a predisposition may develop as a consequence of pregnancy (or puerperium), oral contraceptive use, cancer, or infection.⁷⁻¹⁰ In present study, the commonest causes are alcohol (16.6%). Alcohol abuse has not been consistently found to be a risk factor for ischaemic stroke. In adults, chronic heavy drinking and acute alcohol intoxication have been associated with cerebral infarction, while moderate alcohol consumption seems to have a protective effect. Heavy drinking might lead to stroke by inducing hypertension, cardiac arrhythmias and hypercoagulability. It has also been seen that alcohol intake predisposes males for CVT by contributing to a state of dehydration and hyperviscosity and increasing platelet reactivity.¹⁰ Postpartum (13.3%) and dehydration (13.3%) were the next common causes found in our study. El Damarawy EA *et al* found puerperium as the most common predisposing factor.¹¹ Nagaraj *et al* also found 200 cases of puerperium out of 230 cases (86%) of CVT.¹² Superior sagittal sinus is the commonest venous sinus to be involved in cerebral venous sinus thrombosis. The study done by Kalbag and Wolf showed the incidence of superior sagittal sinus thrombosis in 72%, Lateral sinus thrombosis in 63% and sigmoid sinus thrombosis in 50% cases.¹³ The present study showed superior sinus thrombosis in 63.33% cases, transverse sinus thrombosis in 40% and sigmoid sinus thrombosis in 36.66% cases. The most common cause of cerebral venous occlusion in the study by El Damarawy EA *et al* was intraluminal thrombus, it occurred in 13 patients (86.7%).¹¹ Bousser *et al* reported that all patients in his study of 110 cases had cerebral venous occlusion due to thrombosis.¹⁴ Jeffrey *et al* reported in his study that compression or invasion of cerebral sinuses from dural or calvarial metastases was the main cause in those patients with cerebral sinuses occlusion due to solid tumors.¹⁵ With the extensive investigations conducted by Ameri and Bousser, no cause was identified in 20 to 25% of cases. Pregnancy and the puerperium have been recognized as periods of increased susceptibility.¹ A survey in US based on data from the 1993-94, identified a number of independent risk factor for CVT which accounts for 15-18%.¹⁶ In the present study the cause could not be identified in 26.66% of cases of CVT. In summary, in most of the cases, the cause of CVT is unknown and other common causes are alcohol consumption, postpartum and dehydration. However, CVT is multifactorial, and identification of one risk factor

should not deter the clinician from searching for more causes.

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