Original Research Article

Indian Journal of Obstetrics and Gynecology
Volume 6 Number 5, September - October 2018
DOI: http://dx.doi.org/10.21088/ijog.2321.1636.6518.6

Clinical Profile and Prognosis of Cerebral Venous Thrombosis in Pregnancy and Puerperium

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Abstract

Objective: Objective of the study is to anaLyse the prognosis of CVT in pregnancy and puerperium. *Methods:* It's a retrospective Case study in which epidemiological, clinical picure, risk factors & prognosis are assessed in 24 patients with CVT admitted in the dept of O & G, Govt. Rajaji Hospital Madurai during the period from June 2016 – March 2017. *Results:* Diagnosis were reached through history, clinical picture & confirmed by Magnetic Resonance Imaging Of the 24 patients, 2 patients were AN and all the rest were PN. The main risk factors were anaemia & dehydration in pregnancy & puerperium. The veins affected were transverse sinus & superior sagital sinus (SSS) 16 (60.6%)of them had seizures and 4 had (16.6%) neurological deficit and 4 died due to ICH. *Conclusion:* Treatment with heparin in the acute phase followed by oral anticoagulants was shown as safe & efficient to prevent worsening of the disease, recurrence and for quick improvement of neurological symptoms of all treated patients.

Keywords: CVT; Heparin; Puerperium.

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Received on 12.09.2018,
Accepted on 01.10.2018

Introduction

Pregnancy associated cerebral venous thrombosis is rare in developed countries whereas CVT occurring in puerperium is about 10 – 12 times more frequent in India. There are numerous predisposing causes & greatest risk is in the late pregnancy & the puerperium. Accurate & prompt diagnosis of CVT is crucial because timely & appropriate therapy can reverse the process & significantly decrease the risk of acute complications and long term sequale.

In 1957, Padmavathy et al for the first time from India reported 15 cases of CVT in puerperium in an epidemiological study evaluating the causes of hemiplegia in 119 women. It was at that time recognized as a diagnosis which was mostly made at autopsy & considered lethal. With the advent of newer and more sophisticated techniques & and increasing awareness of this entity, the incidence of this disease has increased and prognosis has improved.

Methods

Government Rajaji Hospital Madurai is a tertiary referral centre which covers the whole of South Tamilnadu. This study was a retrospective case series of 24 patients with diagnosis of CVT, who were admitted and treated in Government Rajaji Hospital, Madurai, Tamilnadu. The duration of the study was 10 months. From June 2016 to March 2017. In our study epidemiological features, clinical pictures, risk factors and prognosis were assessed in all 24 patients with CVT.

Results

On an average, 1100-1200 deliveries occur per month in Government Rajaji hospital, out

of which 90% are high risk cases. Of the 24 cases of CVT all except 2 were PN mothers & median age was 25 years.

The baseline parameters are consolidated in Table 1. 22 out of 24 cases (91.7%) are in the puerperium, only 2 cases (8.3%) are antenatal. Maximum incidence was in the first 2 weeks of puerperium (66.6%). CVT was commonly seen in multiparous women (58.3%) Regarding mode of delivery, patient underwent LSCS done under spinal anesthesia have higher incidence (66.6%) comparing to labour naturalis (33.3%). Hence CVT should be suspected in all postpartum headache before diagnosing PDPH.

Table 1: Base line Parameter in the Study Subjects

Variables		Number of Cases	Percentage
Parity	Primigravida	10	41.7%
	Multigravida	14	58.3%
Mode of Delivery	LN	8	33.3%
	LSCS	16	66.6%
Anesthesia (for LSCS)	Spinal	15 (16)	93.8%
	GA	1 (16)	6.2%
Time	AN	2	8.3%
	PN	22	91.7%

Table 2: Clinical picture

	Number of cases	Percentage
Headache	17	70.8%
Seizures	16	66.6%
Hemiplegia	1	4%
Hemiparesis	2	8.3%
Blindness	1	4%
Neuroimaging (MRI & MRV)		
Single sinus thrombosis	2	8.3%
Combined sinus trombosis	22	91.7%
Site of thrombosis		
Superior sagital sinus	22	91.7%
Transverse sinus	17	70.8%

The clinical picture is depicted in the Table 2. The most common presenting symptoms were headache (70.8%) followed by focal/generalised seizures (66.6%). In neuroimaging studies, combined venous sinus thrombosis was seen in majority of the patients (91.7%). The most common site of thrombosis was superior sasggital sinus (91.7%) followed by transverse (right & left) sinus (70.8%).

Table 3: Outcome

	No of Cases	Percentage
Total recovery	17	70.8%
Death	4	16.66%
Long Term Sequele	3	12.5%

Table 3 shows final outcome of patients with CVT. Recovery was rapid and remarkable. 17 (70.8%) out of 24 patients recovered without any neurological disability. 3 out of 24 patients were discharged with residual paresis. Total mortality was 16.66% (4 cases).

Discussion

Out of 24 cases, 22 patients had delivered and 2 were in the third trimester of pregnancy. The maximum incidence was seen in the first two weeks of puerperium. this is correlating with Srinivasan et al. [8], and Maru A et al. series [8,9]. Pregnancy associated hypercoagulable state, coexisting anemia, local traditional practice of fluid restriction during postnatal period are the reason for higher incidence of CVT during puerperium. Hypercoagulopathy worsenes during delivery and postpartum. The greatest risk period of occurence of CVT is in the third trimester and first 4 weeks of postpartum. CVT during first trimester is rare.

CVT remains a diagnostic challange and is a potentially lethal disease. High index of suspicion and awareness of the clinical features and the predisposing factors along with the aid of imaging techniques can help in the diagnosis of most cases.

Headache was reported by most of all the patients of the series (17/24) R Cumurciuc et al. [3] repeorted that headache was the frequent symptom of CVT and usually the first. Seizures (16/24), (4/24) were admitted with poor GCS.

Another predisposing factor may be spinal anaesthesia which as present in (13/24) cases due to low CSF pressure, due to neural puncture by neuraxial anesthetics. Douglas J. Lanska, richard J Krysrio et al. [5].

Neuroimagine

The gold standard is the combination of MRI, which localises the thrombus with MRV which shows the non visualisation of the same vessel . Hence all 24 patients underwent MRI with MRV.

Single sinus was affected only in 8.3% (2/24)SSS and LTS in 62.5% (15/24) and SSS wuith RTS in 29.1%

(7/24).Wysokinka et al. [6] in a study with 163 patients, showed that transverse sinuis was affected in 79%, sigmoid in 50%,upper sagital in 49% and in 66% of cases two or more sinuses were involved.

Treatment and Outcome

Unlike arterial thrombosis, where clot formation depends on atherosclerotic plaque inflammation and platelet activity, venous thrombosis result from activation of the coagulation casecade. Anticoagulation therapy is thus a corner stone inits managent.

The objectives of antithrombotic treatment in CVT are recanalization of the sinus or occluded vein, prevention of the propagation of the thrombus & treatment of the underlying prothrombotic state, preventing venous thrombosis in other part of the body, such pulmonary embolism & the recurrance of CVT.

Predicting factors for death or dependence in the cerebral sinus thrombotic disease are cited: age over 37 years, altered mental state, coma, cerebral hemorrhage at admission, deep vein thrombosis among others.

In a study with 624 adult patients Ferro et al. [7], reported 13% of mortality and permanent dependance. Factors related to a poor prognosis were coma, hemorrhage and malignancies.

All 24 patients received heparin during acute phase and warfarin for maintenance. Out of them 20 patients treated with heparin did not present with new bleeding. 4 patients has sequelae like hemiplegia and hemiparesis.

The leading cause of death is the hemorrhagic conversion of the large venous infarcts resulting in brain herniation. In these situtations, emergency decomperssive hemicraniotomy can prevent death. 4 patients presented with intracranial hemorrhage & midline shift. Out of which 2 patients underwent decompressive surgery but did not recover.

A retrospective registry of cases of acute CVT treated with decompressive surgeries in 22 centres and a systemic review of all published cases of CVT treated with decompressive surgeries was conducted by Ferro et al. [7] 15.9% died. The author concluded that in patients with CVT with large parenchymal lesion cause herniation

In patients who have had an occurance of CVT pose a transient risk factor advised to use LMWH prophylaxisduring the post-partum period only (4-6 weeks). In patients with recurrent CVT or first CVT with thrombohilia long term anti-coagulants have to be given. The choice of anticoagulnts during pregnancy would be LMWH over unfractionated heparin as it is not associated with teratogenecity or increased risk of fetal bleeding.

Conclusion

CVT is more commonly presents during puerperium. High index of suspicion is essential to diagnose the CVT, because of its wide variation of presentation. MRI with MRA/MRV is considered as gold standard, diagnostic too. Early diagnosis and initiation of anticoagulant therapy along with supportive measures reduces the morbidity and mortality. The prognosis of obstetric CVT is remarkebly good, if it is diagnosed and treated with anticoagulants (UFH/LMWH) at earlier stage.

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