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A Case Presentation of Cardioembolic Stroke in Pregnancy and its Outcome

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ABSTRACT

Stroke, the sudden onset of brain dysfunction from a vascular cause. Pregnancy and postpartum period are associated with an increased risk of stroke. There are various causes of stroke which are unique to pregnancy and post-partum period i.e, preeclampsia and eclampsia, amniotic fluid embolism, postpartum angiopathy and PPCM. We are reporting a case of G3P1L1A1 with 32 weeks period of gestation presenting as left sided hemiperesis secondary to RHD which was managed with multi disciplinary approach and patient had uneventful vaginal delivery at term.

Keyword: *Pregnancy, Stroke, infarct, RHD, Anti coagulant.*

INTRODUCTION

Stroke is an acute neurological injury occurring as a result of vascular pathological process which manifests either as brain infarction or hemorrhage. Stroke is broadly divided into ischemic or hemorrhagic types with ischemic strokes accounting for majority (>80%). According to "Trial of Org 10172 in Acute Stroke Treatment" (TOAST) classification system based on pathophysiologic mechanism of occlusion, ischemic stroke is subdivided in to 'small vessel occlusion' (lacunes), 'large artery atherosclerosis' (embolus or thrombosis) and 'cardioembolic'. In pregnancy occurrence of ischemic stroke is about 10 to 40 per 1,00,000 births. Pregnancy increases immediate and lifetime risk of both ischemic and hemorrhagic stroke.

Most strokes in pregnancy manifests either during antenatal, labor or in puerperium. Approximately 10% cases developed in antepartum period, 40% intrapartum, and 50% postpartum. Risk factors include age, migraine, hypertension, obesity and diabetes, cardiac disorders such as endocarditis, valvular prostheses, patent foramen ovale and smoking. Those related to pregnancy include hypertensive disorders (most common pregnancy associated factor), gestational diabetes, obstetrical hemorrhage and cesarean delivery.

CASE REPORT

A 33 year old female G3P1L1A1 with 32 weeks period of gestation with previous vaginal delivery presented to emergency department with complaints of weakness of left half of the body, with slurred speech since a day. on examination power of 1/5 in left upper and lower limbs with left sided mute plantar. GCS of E4M5V3 with left hemiparesis.

On MRI examination patient was diagnosed to have Right MCA infarct. 2D echo showed Rheumatic Heart Disease

(RHD) having Cardioembolic Stroke managed byphysician, neurologist, anOnce the patient is Once the patient is recovered from acute phase she was referred to gynecologist. On examination, vitals stable, with recovering signs of hemiparesis, uterus corresponding to 32 week size, with FHS heard along left spino-umbilican line.

Patient was put on Enoxaparin, tab Ecosprin, tab metoprolol and Nimodipine for blood pressure management, inj. Benzathine penicillin 12 lacks units IU deep IM, inj. Betnasol 12 mg IM 2 doses to enhance fetal lung maturity. Patient showed signs of recovery and no neurological deficit at 34 weeks and planned for discharge with tab Acitram and followed up on weekly basis. Patient was re-admitted at 36 weeks and tab Acitram is changed over to inj. Heparin, with continuation and antihypertensive drugs and ecosprin was stopped Obstetric scan showed features suggestive of IUGR.

Planned for labour induction at 37 weeks, stopped Heparin 12 hours before labour induction, with diuretic, and endocarditis prophylaxis. But patient went into spontaneous labor, patient delivered a single live male baby of B.Wt 1.96 kg, third stage was uneventful Patient is restarted on Lasix (diuretics), Metaprolol and Acetram for next 6 weeks.

DISCUSSION

Patients with stroke usually have sudden onset of severe headache, hemiplegia or other neurological deficits, occasionally seizures. Clinical features of hemorrhagic and ischemic stroke overlap, and distinction between them is made with hyper acute CT imaging. Specialized MRI sequences and Angiography are more sensitive than CT to acute and chronic hemorrhage and better at detecting early ischemia and more commonly used for the early diagnosis of stroke. Cardioembolic causes of stroke include arrhythmias especially Atrial fibrillation, valvular lesions, mitral valve prolapse, mural thrombus, infective endocarditis and PPCM, and should be looked for.

Outcomes of embolic stroke were reported to be favorable and similar to those of non-pregnant women. Stroke is a serious and treatable disease. Treatment of acute ischemic stroke (AIS) is very time sensitive, speed and accuracy of evaluating and managing patients are important. Each minute that passes there is loss of 1.9 million neurons. Timely reperfusion of ischemic brain is the primary goal of most acute stroke therapies. Emergency Medical Services (EMS) is the most efficient means to transport stroke patients.

Los Angeles Prehospital Stroke Screen and Cincinnati Prehospital Stroke Scale are used as prehospital screening tools for early diagnosis of stroke. For Emergency management rule out other conditions which mimics stroke, neuroimaging with NCCT is done to guide the therapy, initial general supportive care like ventilator support and oxygen therapy in patients with decreased consciousness / bulbar dysfunction, saturation is maintained >94%.

Treat fever if any with antipyretics; search for infection should be made, because it is associated with stroke severity, infarct size and poor neurologic outcome. The use of “induced hypothermia” concept is under study. Hypothermia $<34^{\circ}C$ leads to coagulopathies, electrolyte imbalance, infection and cardiac arrhythmias so should be avoided. Hyperglycemia is usually present in acute stroke and associated with poor outcomes and symptomatic intracranial hemorrhage independent of thrombolytic therapy, and should be monitored and treated with

insulin if persists. Blood sugar should be maintained b/w 140-180 mg/dl. Hypoglycemia can result in brain injury and mimic stroke symptoms and should be corrected as a part of emergency management of stroke.

Hypovolemia correction done with IV saline, but not with dextrose unless there is hypoglycemia. In Acute management of blood pressure goal is to maximize perfusion to ischemic penumbra while minimizing the risk of hemorrhagic transformation. According to NINDS trial target blood pressure should not be more than 185/110mmHg before starting thrombolytic therapy. Patients with BP above this level should be treated prior to starting lytic therapy with labetalol and nicardipine which are recommended antihypertensives, others includes hydralazine or enalapril.

For patients not receiving tPA therapy BP should not be lowered for first 24 hrs unless BP exceeds 220/120 mmHg, otherwise it disrupts the "Cerebral auto-regulation". In acute stroke, elevated blood pressure to maintain CBF (permissive hypertension) needs to be balanced with potentially harmful effects of severe HTN. Intravenous thrombolysis as a method of early vessel recanalization and cerebral perfusion within 3 hours of onset of symptoms to salvage penumbral tissue is the goal and most effective means of most ASTs.

The use of intravenous rtPA is the recommended agent for thrombolysis. According to US Food and Drug Administration (FDA) based on "National Institute of Neurologic Disease and Stroke (NINDS) rtPA stroke study". In selected patients it can be safely administrated within 3-4.5 hrs of window period to improve clinical outcomes [5] over that period there is risk of ICH. rtPA doesn't cross placenta and showed no evidence of teratogenicity in animal studies. It's a category-C drug considered as a relative contraindication for use in pregnancy [3].

According to PROACT-Ⅱ and MELT trial, use of r-proUK with heparin for intra-arterial thrombolysis (Endovascular treatment) has shown benefit in AIS caused by occlusion of MCA who are not otherwise candidates for IV rtPA, starting within 6 hrs of symptoms onset. "Merci retriever device and penumbra system aspiration catheter" approved by FDA as a mechanical method of recanalization in AIS.

There are no RCT to support AST with Thrombolysis /Mechanical thrombectomy in pregnant population [3]. There are no evidence to support urgent anticoagulant therapy for AIS other than to prevent DVT and pulmonary thrombosis. Direct thrombin inhibitors, and glycoprotein Ⅱb/□a receptor inhibitors can be used in AIS.Antiplatelet agents AcetyleSalicylic Acid (ASA) use within 48 hrs of symptoms onset associated with decrease in mortality and recurrent stroke rate.

Management of complications like Raised ICT using hyperventilation, mannitol or glycerol and other measures extends the window period for definitive treatments, and should be used with caution in pregnant women with careful monitoring of hemodynamic parameters in both mother and fetus as they can cause fetal hypoxia and acid-base imbalance. Some associate with teratogenecity [3]. Other supportive measures include, treat UTI and Pneumonia with antibiotics (No role for prophylactic antibiotics).

Prophylactic anticonvulsants are not recommended. Use S/C heparin for DVT prophylaxis. Swallowing screening after

starting oral feeds. Early mobilization for less severely affected patients. Stroke Care Units have the potential to prevent death and disability. An intervention includes early mobilization, better BP control, and prevention of complications like DVT through closer adherence to current evidence based guidelines. Secondary prevention of stroke is by control of risk factors and strict adherent to treatment strategies.

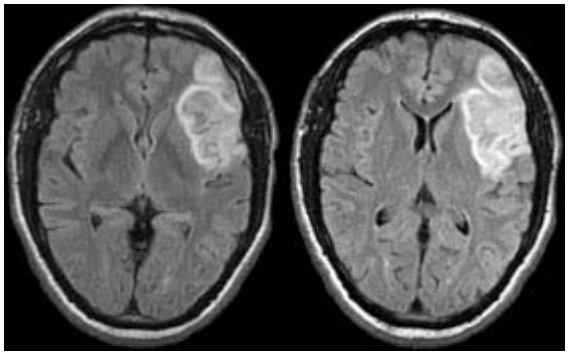

Fig 1: MR imaging showing MCA superior territory infarct.

CONCLUSION

Pregnancy and postpartum period are associated with increased risk of ischemic stroke and intra cranial hemorrhage, which is a serious and stressful event for mother, infant and also their families [2].

It can be concluded that management of ischemic or hemorrhagic stroke in pregnancy should involve interdisciplinary care. Prophylactic anti coagulant therapy should be started in high risk patient whenever it is necessary. Recurrence of stroke in future pregnancy is less [1] . Appropriate contraception method should be advised.

REFERENCES

1) Cunningham, Leveno,Bloom *et al*; Williams Obstetrics;25th edition;1160-1163.
2) Katharine A. French; Rheumatic Heart Disease in Pregnancy, Global Challenges and opportunities; 2018;137;817-819
3) Jessica Tate, Cheryl Bushnell; Pregnancy and Stroke risk in Women; 2011 may;7(3):363-374.
4) Elisabetta Del Zotto *et al;* Ischemic Stroke during Pregnancy and Puerperium, a review article; 4th December 2010.
5) Gurupreet S Wander, K K Pareek, Medicine Update; Progress in Medicine-Volume 2; 2016-1; 1069-1072.