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Preeclampsia: A Plausile Playground for Stroke During Pregnancy and Puerperium

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Abstract: Preeclampsia is emerging as a serious, threatening problem during pregnancy and puerperium. Stroke which is a neurological emergency is becoming a distressing debilitating reason for the disability and morbidity among reproductive age group women.Across the globe, studies have delineated the fact that women are at a higher risk for developing stroke in comparison with men as well as higher mortality rates. Most strokes occurring in relation to pregnancy, either manifest during labor and delivery or in the puerperium phase. In this article we outline the importance in understanding the correlation between preeclampsia and stroke, the inter relational factors favoring its development and the positive effects of diagnosing the etiological factor at an earlier stage with good diagnostic modalities and treating accordingly in a timely manner with an individualized approach, taking into consideration the possible side effects without compromising the maternal and fetal health which is of prime importance

BACKGROUND AND PURPOSE

Preeclampsia is emerging as a serious, threatening problem during pregnancy and puerperium, accounting for about 2 to 8 in 100 pregnancies worldwide and it is imperative in this setting, that we understand the correlation between this condition and the probability of it leading to cerebral stroke, which is a neurological emergency that is becoming a distressing debilitating reason for the disability and morbidity among reproductive age group women.

Across the globe, studies have delineated the fact that women are at a higher risk for developing stroke in comparison with men as well as higher mortality rates. Furthermore, with the incidence of strokes in pregnancy ranging from 1.5 to 71 per 100,000 pregnancies, it has been evidently demonstrated that pregnancy increases the chances of development of ischemic stroke or hemorrhagic stroke be in in the immediate peurperium or at a later date, the risk prevails and it is on the higher side during the postpartum period.

INTRODUCTION:

Preeclampsia being a pregnancy - specific syndrome affecting virtually every organ, the manifestations are more complex than defining it as just hypertension in pregnancy with associated proteinuria. Young and nulliparous women are particularly more vulnerable among many other variables.

Most strokes occurring in relation to pregnancy, either manifest during labor and delivery or in the puerperium phase. With the pregnancy associated hypertensive disorder by far, being the most common risk factor in the development of stroke, it is a notable thing thatthree- to eightfold the possibility of development of stroke is delineated in hypertensive when compared with normotensive women.

After a pre eclamptic woman with cerebrovascular symptoms delivers the baby, it is usually presumed that she is quite out of the danger. Yet, the risk for her developing stroke and other cardiovascular disease far from the mere postpartum period still remains on the higher side.

THE PLAUSIBLE LINK:

Pre-eclampsia is a condition in which the tone of the vasculature inclusive of the blood vessels is increased which is partly due to their increased sensitivity towards the vasoconstrictors. The vasoconstrictors are on the rise due to hypertension. There is also concurrent organ hypo perfusion due to the vaso spasmicity characterizing the disorder. Endothelial dysfunction causes derangement of the natural processes like alteration in the tone of the blood vessel walls, mechanism of activation of platelets, and also alteration in thrombotic events leading to infarction thereby contributing to a major role in its pathogenesis predisposing to stroke.

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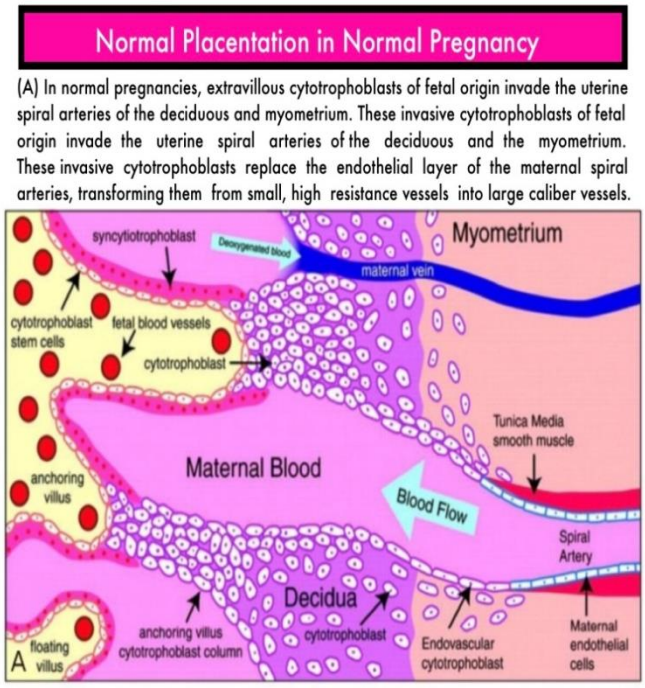
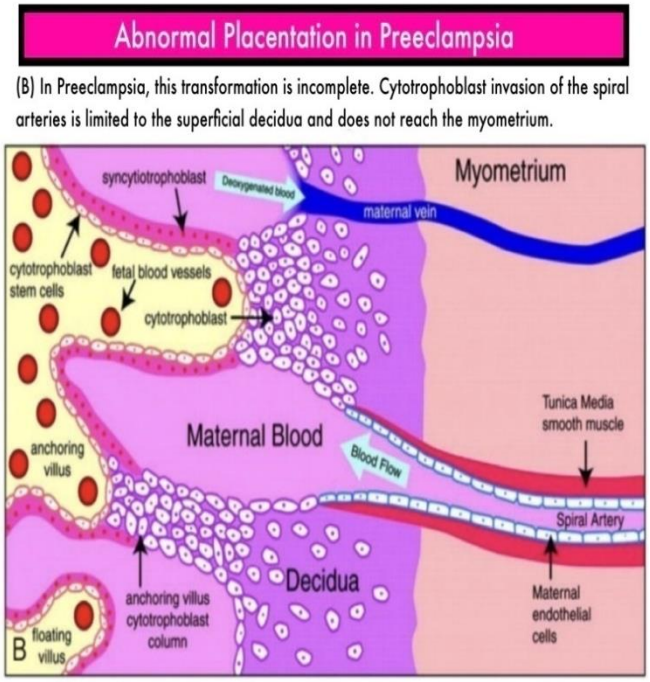


The etiology that confers and precipitates the development of pre eclampsia may be varied. The damage to the endothelium is profound in case of pre eclampsia with vasospastic changes and plasma transudation leading to events which occurs in a cascade pathway with the common sequelae being thrombotic and ischemic changes.

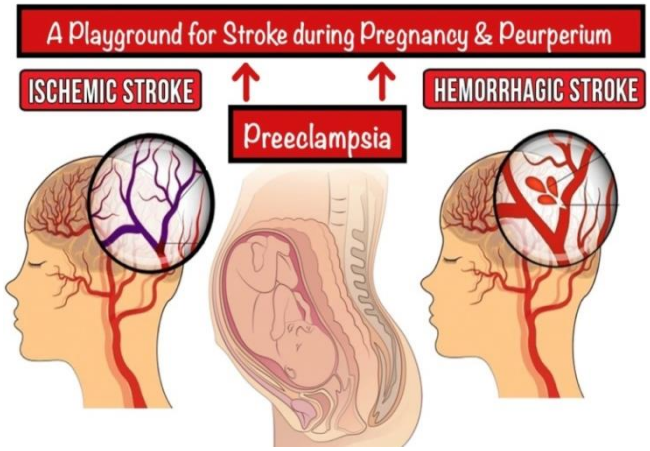
Women having pre eclampsia undergoing general anesthesia are at higher risk of stroke compared with those undergoing neuraxial anesthesia. Another risk factor pertaining to peripartum stroke is cesarean delivery, which increases the risk 1.5-fold compared with vaginal delivery.



DISCUSSION:

The studies have concluded that there is a 2.4 times higher risk in case of pregnant women than in the non-pregnant women who are in the same age group and ethnicity in comparison. The attributable risk of developing stroke was found to be 8.1 in 100,000 pregnant cases combining both the pregnancy and also the period post pregnant state. Women with a previous history of pregnancy related ischemic or hemorrhagic stroke was found to be at a lower risk category in the context of development of recurrent stroke during the pregnancies that follow, unless there is a specific, persistent cause. Preeclampsia poses a threat for the development of stroke that is not only confined to pregnancy or peurperium but also during remote times far from those maternal and post peurperial stages.

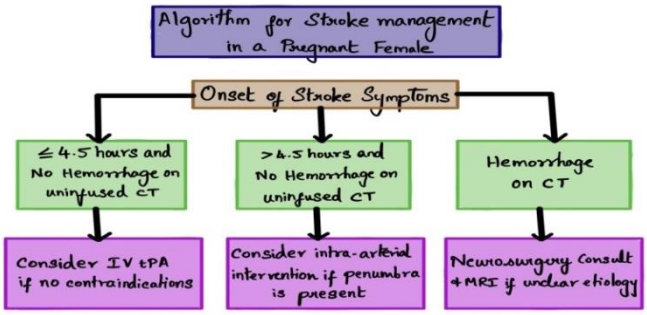
Average maternal mortality is estimated to be around 17.8% among all strokes, 3.9% amounting for strokes of ischemia as etiology, and 13.8% accounting for strokes of hemorrhagic cause. There is a finding that concluded that strokes which developed following pregnant state had a lower morbidity rate than for a classical stroke. It is also proved from previous experience that the probabilities of stroke to recur in the future pregnancies are found to be on the lower side.



MANAGEMENT METHODOLOGY:

The management methodology of stroke in case of a pregnant patient follows the same protocols just like any other case of stroke in general. Oxygen supplementation must be adequately provided, blood pressure variations must be attended to immediately and glycemic control should meet the standard values. Following the general management of the patient, we have to confirm the etiological factor. To determine whether it was of ischemic or hemorrhagic etiology should be made clear before taking any appropriate steps. The etiology must be ascertained in order to carry out further ways to manage like retrieval of clots or thrombolytic procedure whichever is more suitable for the individual.

Thrombolysis in the early stages of evolving stroke utilizing the tPA (tissue Plasminogen Activator) intravenously or the potent agents for thrombolysis intra-arterially or mechanical methods pertaining to remove the clot are proven methodologies to be followed in case of ischemic stroke.



The use of Aspirinto begin after 24 hours after the procedure undertaken during its acute management has been recommended and debated for reducing the risk of stroke recurrence.

When a patient presents to us six hours within the start of the symptoms, Mechanical thrombectomy is advised and taken up for the procedure especially in those patients who typically have an arterial block in the anterior circulatory field.

In case of hemorrhagic stroke, first preference should be given to bring down the raised blood pressure. After managing hypertension other aspects should be taken care of. Diuretics that functions primarily through osmotic mechanisms should be given in order to relieve the intracranial tension. It is given for the benefit of the mother. In case of compressive symptoms, immediate evacuation of the hematoma surgically mast be resorted to in order to prevent further complications.

CONCLUSION:

Thus, it is evident that preeclampsia during pregnant state or in the puerperal period serves as a plausible playground for the occurrence of stroke. The physiological mechanisms of circulation and coagulation do not function normally in the case of preeclampsia which becomes a favorable etiology and a risk factor for ischemic or hemorrhagic stroke to occur. It has been noted that risk for stroke due to hemorrhage is on the higher side during the final stages of pregnancy.

Stroke in a normal setting differs much from that occurring in relation to pregnancy. In this case, there are factors to be considered with reference to the well-fare of the mother and the child before the tests to be done for the diagnosis and management procedures.

While taking these factors to consideration, it may lead to some compromises pertaining to management methodologies, even though keeping in mind the probable and potential distressing side effects and aftermath of stroke in such pregnant females.

Taking all aspects into consideration, individualized protocol must be followed for stroke in pregnant and puerperal females with the tests and interventions allowing rapid diagnosis, promoting best outcomes.

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