

Improvement of Sympathovagal Balance by Yoga Could be Essential in Achieving Effective Therapeutic Outcome in Antenatal Depression

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Pregnancy is a unique physiological state having alterations in almost all systems of the body including cardiovascular, respiratory, renal, hematological, hemodynamic and neurological functions. Recently, autonomic changes and psychological functional alterations have been more observed in pregnancy disorders. Increase in incidence of stress and depression in perinatal period has already been widely reported. Autonomic changes in pregnancy and its dysfunction in depression are well documented. However, there is paucity of evidence associating cardiovascular autonomic dysfunction to stress, depression and mood disorders in pregnancy and more specifically later part of during antepartum period. Pregnancy is associated with multiple metabolic, circulatory and mental changes and these changes make pregnant women vulnerable to many health conditions which can be detrimental to maternal and neonatal well-being.^[1]

In the past, normal pregnancy is traditionally considered as a condition that enhances emotional wellbeing, not only in the family but also in the pregnant women. However, in the present society, due to nuclear family, both parents working, financial constrain, lack of support from the in-laws, increasing age at pregnancy and many other sociocultural conditions, incidence of anxiety, stress and depression have increased in the pregnant women, especially in last trimester of pregnancy, the period close to delivery.^[2] Diagnostic and statistical Manual of Mental Disorders 5 (DSM 5) recognise peripartum depression as a Major Depressive Episode (MDD) occurring during or after pregnancy (American Psychiatric Association, 2013).^[3] George *et al.*, studied antenatal depression in coastal South India for prevalence and risk factors and found prevalence of 16.3%.^[2] Others have also found prevalence of perinatal mental disorders to be 15.6% in low-and middle-income countries. Perinatal depression is associated with poor maternal and foetal outcomes, as demonstrated by various community and facility-based studies.^[2]

Though, there are paucity of reports on the sympathetic and parasympathetic activities in pregnancy, few reports indicate increased sympathetic activity during pregnancy.^[3] It has been observed that Cardiac Autonomic Functions (CAF) are shifted to high parasympathetic and low sympathetic activity in early normal pregnancy and other way around in late pregnancy.^[4] From our laboratories, we have reported that sympathetic drive increases in normal pregnancy and decrease in vagal drive during pregnancy triggers the pathophysiological mechanisms that leads to the development of pregnancy-induced hypertension.^[5] There are reports of the association between cardiac autonomic functions and Major Depressive Disorders (MDD) in various groups of people. Udupa *et al.*, correlated depression with altered CAF, where increased sympathetic and decreased parasympathetic activity were seen among patients of MDD.^[6] Though there are less data of scientific evidences correlating the association of autonomic dysfunction with depression in pregnancy, recently we have reported the association of Heart Rate Variability (HRV) and baroreflex sensitivity (BRS) with depression and stress in pregnant women with depressive symptoms.^[1] We observed that sympathovagal imbalance (increased LF:HF ratio of HRV) could be associated with depression during antenatal period. We have also observed that the depression in antenatal period may add on to cardiovascular risk (decreased baroreflex sensitivity) in pregnant women.

Yoga has been recently widely practiced during pregnancy to facilitate complication-free parturition and to achieve good maternal-neonatal health. Yoga will certainly be a therapeutic tool for managing antepartum depression during pregnancy, as research evidences have suggested that it can effectively reduce depressive symptoms by promoting mindfulness, relaxation and gentle physical activity, making yoga practice a safe and potentially beneficial option for pregnant women experiencing depression.^[7] However, it is obligatory to consult an obstetrician and a yoga healthcare professional before starting any yoga therapy regime, especially while pregnant, to ensure the practice is tailored to the specific needs of the pregnant and the practice is doable during pregnancy, especially in the third trimester .



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Nevertheless, it is essential to ensure that the yoga program is aimed at decreasing sympathetic and increasing parasympathetic tones, as sympathovagal balance will safeguard the maternal physical and psychological health. Pranayama is a very effective yoga tool to improve vagal tone and decrease sympathetic drive.^[8] As such, in pregnancy due to increasing size of abdomen in third trimester, when the depressive symptoms are more, it becomes difficult for the antenatal women to practice difficult asanas or surya namaskar. However, it is easier to practice pranayamaic breathing exercises sitting on the bed. In a recently conducted study (unpublished observation) on the effects of yoga schedule that primarily included practice of relaxing asanas and pranayamas in antenatal women having anxiety and depression, we have observed a profound improvement in mental health and robust decrease in depression in these women having severe depression-symptoms during pregnancy, in addition to the improvement in fetal-maternal-neonatal outcomes. We have also observed the significant correlation of improved sympathovagal balance with decrease in depression score in these women. In Indian subcontinent, with lot of reservations for use of allopathic medicines in pregnancy, especially the medicines that are known to have side effects on fetal-maternal health, it is desirable to explore the practice of yoga, naturopathy and other exercise therapies that will promote sympathovagal balance

and decrease adverse maternal-neonatal outcomes in pregnant women having depression. Clinical trials in larger sample size should be conducted to establish the evidence-based use of yoga a therapeutic tool in the management of antepartum depression.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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