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Effect of Yoga therapy on Antenatal stress and pregnancy outcome

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ABSTRACT

Pregnancy is a special time for many changes, mainly physical, physiological, psychological and emotional. Stress during pregnancy may be from life events and other factors such as financial, social and environmental problems. Feeling stressed is common during pregnancy but too much stress can make you uncomfortable and cause adverse maternal complications.

To overcome the adversities of complications during the pregnancy period yoga has been proven to be an effective method for improving health in addition to prevention and management of disease. With increasing scientific research in yoga, its therapeutic aspects are also being explored. Emphasis around the world is to provide therapeutic and supportive care during antenatal period to prevent pregnancy related complications. The present study attempts to assess the effect of yoga therapy on antenatal stress and pregnancy outcome.

An evaluative approach, a randomized controlled trial design was adopted for this study. Pregnant women at 18-22 weeks of gestation were randomly selected at Obstetrics and Gynaecology (OBG) outpatient department of Kasturba Hospital, Manipal and Dr. TMA Pai Hospital, Udupi. Of the 155 pregnant women assessed, 23 pregnant women did not meet the eligibility criteria for inclusion. Block randomization method was used for allocating 132 pregnant women into two groups, with 66 women in each group. Stress level was assessed by using modified version of A-Z stress scale developed by the Kazi A et.al (2009). The tools (Baseline Proforma, Outcome of labour, Stress scale) were developed by the investigator to generate data which was validated, pretested and reliability was established. The reliability

(Cronbach alpha) of stress scale was $r=0.84$. The pretesting, reliability of the standardized tool used to generate the necessary data and the pilot study were done in the same setting before starting the study. The pilot study was conducted between August 2010 and September 2010, during which the investigator faced problems in obtaining subjects as per the stratified block randomization sample criteria and the availability of more primigravida women than multigravida women, so investigator used block randomization design. The data collection for the study was from September 2011 to August 2014. Approval was obtained from the Manipal University ethical committee. Informed consent was obtained from pregnant women. Both the groups were assessed at 18 to 22 weeks of gestation to determine the baseline proforma and stress levels before the intervention. The experimental group practiced yoga for 30-45 minutes daily at home till delivery and the control group had received care. Lost to follow up were five (7.57%) pregnant women in yoga group and three (4.54%) in the control group. Post-test was assessed at 33 - 35 weeks of gestation for stress level, heart rate, blood pressure and Uterine Artery Resistance Index. Pregnancy outcome was assessed for both the groups. Finally 61 subjects in the yoga group and 63 in the control group were included in the analysis. Descriptive and inferential statistics were used to analyse data. The analysis was done according to the objective and hypotheses by using SPSS: 15.0 versions.

Results: The demographic variables such as age, parity, educational status, occupation and income were comparable among the groups. A total of 20 (33%) of pregnant women in yoga group and 17 (27%) in control group had moderate to severe stress. There was a significant reduction in mean post-test stress score in antenatal women who received yoga therapy (10.11 ± 3.85) when compared to the control (0.64 ± 2.58) group, which was statistically significant ($p < .001$).

In order to determine the effect of yoga therapy on heart rate, systolic and diastolic blood pressure, Systolic-Diastolic (S/D) ratio, Resistance Index and Pulsatile Index, two way repeated measures ANOVA was used. The mean post-test heart rate (85.96 ± 4.47) of pregnant women who received yoga therapy was apparently lower than their pre-test mean scores (86.37 ± 5.26) whereas in the control group it was marginally higher. This difference was statistically significant ($F=5.034$, $p = .027$). However, though post-test Systolic-Diastolic (S/D) ratio (right and left), Resistance index (left and right) and Pulsatile index (right and left) and Resistance index (right and left) were lower than pre-test, the difference was statistically not significant. The post-test systolic blood pressure (BP) was higher than pre-test scores and the difference (4.34 mm Hg) was statistically significant ($p=.009$). The mean gestational weeks at delivery in yoga group was 38.56 ± 0.92 weeks though marginally higher than the control group 37.87 ± 1.87 . The difference was statistically significant ($p=.011$). Thus, it is inferred that yoga therapy has a positive effect on the maternal outcome. The mean duration of labour in women who had vaginal delivery in yoga group was 5.6 ± 2.1 hours as against the control group (6.0 ± 2.3). The difference was not statistically significant ($p=.50$).

Fisher's exact test and Chi-square test were used to compare the maternal outcome among yoga and control groups. Incidence of preeclampsia (3.3%), IUGR (6.6%) and preterm delivery (1.6%) were lowest in the yoga group compared to control group (19.6%, 9.5% and 22.2%). The difference was statistically significant for preeclampsia ($p=.009$) and preterm delivery ($p<.001$). There was no significant statistical difference in the mode of delivery ($p=.424$), IUGR ($p=.744$) analgesia required during labour ($p=.779$) and the risk of post-partum haemorrhage ($p=.492$). The findings infer that antenatal women in the yoga therapy have 84% less risk of preeclampsia (Risk Ratio=0.16) and the risk of preterm delivery (Risk Ratio=0.07) is 93% less than that of antenatal women receiving routine care.

Fisher's exact test was also used to compare the neonatal outcome among the groups, the foetal distress was observed among 5 in the yoga group (8.2%) against 6 in the control group (9.5%), these differences were not statistically significant ($p=.392$). The need for NICU admission in yoga group was lower (8.2%) than that of control group (14.2%). Moreover 60 (98.4%) of babies in the yoga group cried immediately after birth compared to that of 57 (90.5%) in control group. These differences were ($p=.115$) statistically not significant. The mean Apgar score at one minute in yoga group was 8.62 ± 0.58 marginally higher than the control group 7.93 ± 1.35 . The difference was statistically significant ($p<.001$) and five minutes mean Apgar score for yoga group was 9.14 ± 0.40 marginally higher than the control group 8.73 ± 1.2 , it was statistically significant ($p=.012$). The birth weight of neonates born to pregnant women in the yoga group was 3 ± 0.43 Kg which was higher than that in the control group (2.71 ± 0.51) and the difference was statistically ($p=.001$) significant.

Based on the study findings, the following conclusions were drawn

The findings of the study showed that selected yogaasanas (Tadasana, Trikonasana, Ardhakati Chakrasana, Vajrasana, Baddakonasana, Anulomaviloma, Bhramari pranayama and Shavasana) are safe during pregnancy and reduce the antenatal stress levels. They possibly have a positive influence on the duration of pregnancy, mode of delivery, duration of labour and probably contribute to good maternal and neonatal outcome.

Based on the present study findings the following recommendations were made:

- Efforts should be made to increase awareness among pregnant women regarding importance of yoga therapy to reduce stress.
- Yoga therapy information charts should be made available at the antenatal clinic and nurses should be educated on this therapy.
- Health education to the general public regarding the consequence of antenatal stress and importance of yoga therapy.
- Large scale multi-centric RCT can be undertaken to assess the effect of yoga therapy on antenatal stress and pregnancy outcome.
- A comparative study of yoga therapy and exercise therapy can be undertaken.