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EFFICACY OF YOGA ON LOW BACK PAIN & DISABILITY IN PRIMI GRAVIDAS

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ABSTRACT

Background: Low back pain is the most undesirable phase of women. Every pregnant woman would suffer from low back pain with mild or severe intensity. Various methods and forms of treatment have been practised to relieve low back pain during child bearing phase without causing any harm to the developing foetus. This study has focussed on yoga to relieve the pain and disabilities due to low back pain in primi gravida women.

Objective: To evaluate the effectiveness of yoga postures in reducing the low back pain and disability due to low back pain in second trimester of prima gravidas.

Method: Primi gravida women with low back pain were randomised to 2 groups, group-1 and group-2. The study was conducted for 8 weeks and included 70 patients with 35 in group-1 and 30 in group-2. There were 5 drop outs. The selection criteria were based on patients suffering from low back pain which was further restricting their normal daily activities. The pain was assessed with VAS score of 0-10 with mean of 5.6 and 6.2 respectively in experimental and control group respectively before the treatment and disabilities were assessed with MODI with mean score 52% and 57 % respectively before treatment. The Group-1 was treated with yoga postures and group-2 by gynaecologists' advice with acetaminophen, external topical gel and moist heat modalities.

Results: The study concluded that there was significant reduction of pain on VAS score ($p < 0.001$) and reduced disabilities on MODI ($p < 0.001$) in both the groups. The statistical analysis showed there was significance within the interventional group and also within control group. Whereas the analysis done between the groups showed high significance of the interventional group having better recovery than the control group at the end of 8 weeks.

Conclusion: Yoga postures had higher benefits in alleviating the low back pain and reducing disabilities related to low back pain in primi gravidas.

Keywords: Yoga, low back pain, pregnancy, primi gravida, 2nd trimester, MODI, VAS.

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INTRODUCTION

Low back pain is common symptom during pregnancy. Pregnancy is termed as burden on musculoskeletal system [1]. Primi Gravida women (pregnant for first time) have inadequate knowledge about pregnancy care as they have no previous experience of pregnancy due to this they may undergo few complications related to pregnancy and child birth. Pregnancy related low back pains are common problems with significant physical, psychological, socio economical implications. Low back pain in pregnant women may be influenced by lower educational status, cultural, environmental and social factors limiting their access to antenatal care [2,3].

During pregnancy drastic physiological & anatomical changes occur in pregnant woman's body [4]. The hormone relaxin, produced by corpus luteum leads to laxity of the pelvic & lumbar ligaments. The postural changes is due to enlarging gravid uterus causing increase abdominal girth leading to relocation of centre of gravity the body in pregnancy which affects the vertebral column leading to pain in lumbar sacral segment [1,5]. Physical changes in the pregnancy lead to changes in the biomechanics of function which has later effect on functional movement [6]. Discomfort due to low back pain in pregnancy interferes with various activities of daily living like standing, walking, climbing. Accordingly the activities of daily living may considerably worsen low back pain [4,5]. It is reported that 45% to 60% of pregnant women have low back pain & nearly 10% may have severe low back pain which interferes activities. 42% of pregnant women experienced low back pain in the second trimester [7].

Most of the pregnant women do not take any care or treatment for low back pain until the dysfunction or discomfort affect the activities of daily living.

Regular tailored or structured physical exercises benefit both mother and foetus. Physical activity helps to improve physiological, metabolic & psychological factors in spite of specific pregnancy related physiological changes. Maternal benefits of physical activities are improved cardiovascular function, controlled pregnancy weight gain, reduced musculoskeletal discomfort, reduced muscle cramps & pedal oedema, mood stability; lessen gestational diabetes mellitus & gestational hypertension [8]. Pregnant women with intense low back pain are treated with some drugs that are safe during pregnancy which do not cause any harm to the foetus [1].

Yoga is a mind-body practice which improves the general health, diminish distress, and increase self-awareness. Yoga is important to pregnant women when their body undergo changes due to hormonal, structural and psychological functions [9].

Yoga asanas are the safest practise of physical form of exercises. Yoga during pregnancy helps to lower heart rate & blood pressure & complications like pregnancy induced hypertension which can lead to prematurity and intrauterine growth retardation. Yoga asanas decreases the pain by

stimulating the pressure receptors which enhances the vagal activity further leading to decrease in cortisol, increase in serotonin and decrease in substance P [10].

Yoga is cost effective intervention for treating low back pain [11]. Yoga practise during pregnancy also has benefits after delivery to prevent postpartum discomforts [12].

Practising yoga once a week may be enough to provide lower back pain relief and reduce the need for pain medication [13].

Several studies have mentioned about preventive and therapeutic effects of Yoga in prenatal phase. Yoga has helped in relieving the low back pain also yoga helps to reduce stress, depression, anxiety and pregnancy related complications [14].

MATERIAL AND METHOD

Study Design: A randomized experimental study. Settings and participants: The study included 70 primi gravida women in their second trimester from Department of OBG of Kempegowda Institute of Medical sciences, Bangalore and Department of OBG K.S.Hegde Medical Academy, Mangalore. Subjects were explained the aims and contents of the intervention before they decide to participate. The selection criteria was based on; second trimester primi gravida women, with low back pain at lumbar region without radiation, tenderness over paraspinal muscles at lumbar region, Pain for more than 10 days, inability to perform normal daily activities due to pain.

INTERVENTION

All the subjects selected were randomized and allocated into two groups. Group-1 (the experimental group) and Group-2 (the control group). The subjects were briefed about the intervention and informed consent was obtained. The Group-1 will receive yoga for 8 weeks during the second trimester. The yoga in the form of Asanas (postures) is taught to the patients to perform 3 times a week for 8 weeks under the supervision of the therapist. Yoga is done in the morning or in the evening. Normal breathing of 10 times inhalation and exhalation is incorporated between each asanas to provide relaxation to the patient. The yoga demonstrated and taught will be; Tadasana, Vrikshasana, Ardha Chandra asana, Virabhadrasana, Utkatasana, Trikonasana, Vajraasana, Badhakonasana and Shavasana.

The Group-2 will be following medical care and advice given by the gynaecologists and by the investigator. The Medical advice would be to take Acetaminophen, external application of pain relieving topical gel and heat modalities.

Outcome Measures: Measurement of pain was assessed with visual analogue scale (VAS) and the disabilities is investigated with the Modified Oswestry Disability Index (MODI) on 0 day, end of 4th week and end of 8th week.

DATA ANALYSIS

Statistical analysis was done using SPSS 21 version. Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean \pm SD (Min-Max) and results on cate-

gorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. P value is set 0.05[Level of significance]. Repeated measures ANOVA have been performed within the group for the ratio scale. To compare the groups, Post-hoc comparison-Bonferroni tests was conducted following the main effects analysis will be used for the ratio scale.

RESULTS

In this study Primi gravida women with low back pain were randomised to 2 groups. The study was conducted for 8 weeks and included 70 patients with 35 in Group-1 and 30 in Group-2. There were 5 drop outs in the Group-2. In the evaluation of VAS (Table-1, Graph-1) the mean & standard deviation with 35 subjects in Group-1(Yoga), in the pre-test(5.6 ± 1.05), the mean & standard deviation at the end of 4th week (3.4 ± 1.64), the mean and standard deviation at the end of 8th week the pain had significantly reduced (0.7 ± 1.8). The mean and standard deviation with 30 subjects in Group-2(Medications), in the pre-test (6.1 ± 1.1), the mean and standard deviation at the end of 4th week (5.2 ± 1.08) and the mean and standard deviation at the end of 8th week (4.8 ± 0.94).

In the evaluation of MODI score (Table-2, Graph-2), the mean and standard deviation with 35 subjects in Group-1 (Yoga), in the pre-test (52 ± 7.3), the mean and standard deviation at the end of 4th week (35 ± 10.5), the mean and standard deviation at the end of 8thweek (19 ± 9.3).

The mean and standard deviation with 30 subjects in Group -2 (Medications), in the pre-test (57 ± 5.2), the mean and standard deviation at the end of 4th week (54 ± 5.7), the mean and standard deviation at the end of 8th week (52 ± 5.8)

The statistical analysis of VAS & MODI showed significant reduction in pain and improvement disability in group-1 than in group-2.

Table1: Evaluation of Pain on VAS

VAS	Group-1	Group-2	P-value
Pre test	5.6 ± 1.05	6.1 ± 1.1	
4 th week	3.4 ± 1.64	5.2 ± 1.08	<0.001
8 th week	0.7 ± 1.8	4.8 ± 0.94	<0.001

Graph 1: Representation of VAS

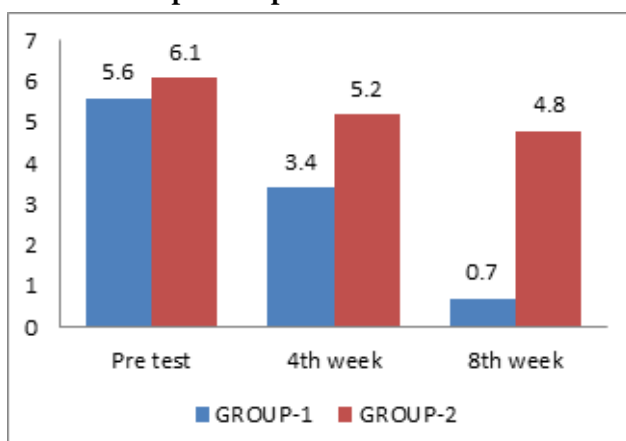
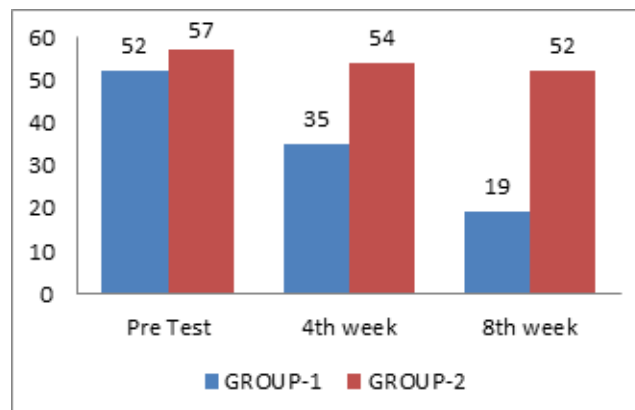


Table 2: Evaluation of Modified Oswestry Disability Index

MODI	Group-1	Group-2	P-value
Pre Test	52 ± 7.3	57 ± 5.2	
4 th week	35 ± 10.5	54 ± 5.7	<0.001
8 th week	19 ± 9.3	52 ± 5.8	<0.001

Graph 2: Representation of Modified Oswestry Disability Index.



DISCUSSION

In our study to know the role of yoga on reducing the symptoms of low back pain and reducing the disabilities in performing normal daily activities we have found that yoga will certainly reduce the low back pain in second trimester primi gravida women. We have observed that the pre intervention assessment of pain and disabilities using VAS and MODI had showed changes when assessed on 4th week and 8th week respectively. The statistical analysis showed group-1(yoga) showed better and early recovery than group-2(medication). In the experimental group the pre-test score of VAS was (Mean ± SD) 5.6 ± 1.05 which reduced to (Mean ± SD) 0.7 ± 1.8 by the end of 8th week. The pre-test score of MODI was (Mean ± SD) 52 ± 7.3 which reduced to (Mean ± SD) 19 ± 9.3 by the end of 8th week. This shows a significant change in VAS and MODI following yoga intervention. Whereas the control group the pre-test score of VAS was (Mean ± SD) 6.1 ± 1.1 which was reduced to (Mean ± SD) 4.8 ± 0.94 by the end of 8th week. The pre-test score of MODI was (Mean ± SD) 57 ± 5.2 which reduced to (Mean ± SD) 52 ± 5.8 by the end of 8th week. Though there were changes in VAS & MODI scores at the end of study, the group-1 showed better recovery.

CONCLUSION

This study suggests that yoga benefits primi gravida women in the second trimester suffering from low back pain and having restrictions in performing normal daily activities. The yoga asanas for 8 weeks has helped the primi gravida women to recover earlier than taking medications additionally they had reported of better well being physically and mentally which is an essential for prevention of complications during child birth and motherhood.

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