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Prenatal Yoga and Its Effect on Blood O_2 Saturation Level of Pregnant Women

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Abstract

The purpose of the study was to find out the effect of prenatal yogic exercises on Blood O_2 saturation level at rest amongpregnant women during their 2nd and 3rd trimesters. Pulse oximetry was used to measure oxygen saturation by illuminating the skin and measuring changes in light absorption of oxygenated (oxy-haemoglobin) and deoxygenated blood (reduced haemoglobin) using two light wavelengths: 660 nm (red) and 940 nm (infrared). The ratio of absorbance at these wavelengths is calculated and calibrated against direct measurements of arterial oxygen saturation (SaO_2) to establish the pulse oximeter's measure of arterial saturation (SpO_2). For this the data of 20 pregnant women were collectedfrom the tri-city i.e Mohali, Panchkula and Chandigarh to find out the impact. Out of 20 women, 10 women were experimented and 10 women were controlled from 2nd to 3rd trimesters.The yoga exercises and tests were practiced under the supervision and guidance of authorized and experienced Dr. Sushma Noheria (General Physician, Gynaecologist, and Obstetrician) and her team. Before administration of the test proper pre-screening of the subject was done. Data collection was done with the consultation of doctor.

Keywords: Pregnant Women 2nd And 3rd Trimester, Blood O_2 Saturation Level, Tri-City.

Introduction

Women during pregnancy, generally feels shortness of breath even while performing very little amount of any physical activity. Therefore, performing prenatal yoga during pregnancy can reduce the amount of fatigue during pregnancy.Breathlessness is caused by the shortage of oxygen level into the blood stream. In severe cases, it could be caused by some respiratory diseases. Condition such as hypoxia (low level of oxygen in blood) can be critically dangerous for the mother as well as the fetus.

Review of Literature

Pulse oximetry is used to measure oxygen saturation by illuminating the skin and measuring changes in light absorption of oxygenated (oxy-haemoglobin) and deoxygenated blood (reduced haemoglobin) using two light wavelengths: 660 nm (red) and 940 nm (infrared). The ratio of absorbance at these wavelengths is calculated and calibrated against direct measurements of arterial oxygen saturation (SaO_2) to establish the pulse oximeter's measure of arterial saturation (SpO_2) (Jubran, 2015).

The normal range of SaO_2 (Blood Oxygen Saturation Level) at rest is considered to 95% and above.According to Sunyal et. Al during pregnancy, the consumption of oxygen increases in the body.Khwanda, et al. (2010) Measures the oxygen saturation on exercise, using a pulse oximeter, has been advocated in the assessment of women with shortness of breath in pregnancy. However, there is currently no standard protocol for this.In their study, the mean fall of 0.3% in oxygen saturation on exertion was found but oxygen saturation did not fall below 95% in any of the women.

Revera, et al. (2012) studied that slow deep breathing improves blood oxygenation (Sp_{O2}) and affects hemodynamics in hypoxic patients. Pre-natal yoga can help increase the level of oxygen in the blood.

Objectives of the study

To study the effect of prenatal yogic exercises on blood oxygen saturation level at rest during 2nd and 3rd trimester among controlled group.

To study the effect of prenatal yogic exercises on blood oxygen saturation level at restduring 2nd and 3rd trimester among experimental groups.

Hypotheses of the study

There will be no significant difference in the controlled group at rest during 2nd and 3rd trimester on blood oxygen saturation level.

There will be no significant difference in the experimental groupat rest during 2nd and 3rd trimester on blood oxygen saturation level.

Methodology and Procedure

For this study 20 pregnant women were selected, out of whom 10 women were experimented with prenatal yogic exercises and 10 women were controlled for 2nd and 3rd trimesters.The yoga exercises and tests was practiced under the supervision and guidance of authorized and experienced Dr. Sushma Noheria (General Physician, Gynaecologist, and Obstetrician) and her team. The administration of yoga exercises was done after pre-screening of the subjects. Data collection was done with the consultation of doctor. Sequence of prenatal yogic exercises was based on individual needs and limitations. Pulse Oximeter was used to assess the level of blood oxygen saturation level among controlled and experimental groups at rest during 2nd and 3 trimesters. The data was analysed using appropriate statistical technique. Further, descriptive statistics has been used for detailed description.

Results and Discussion

Paired t-test was applied among groups of 2nd and 3rd trimesterfor the purpose of statistical interpretation to test the significance of difference between means.

The following table (Table No.-1) showing difference between the blood oxygen saturation level at rest among controlled groups during 2nd and 3rd trimester.

Table-1

Experimented Group	Mean	S.M.D	S.D	t-value
2nd and 3rd trimester	1.2	5.6	0.25	4.81

*significant level at 0.01 (df=9)

Results summarised in table-1 indicates that the there is a significant difference between 2nd and 3rd trimesters. The t-value on the dimension blood O_2 saturation level was 4.81. The p-value is 0.00912, which shows that the result is significant at p<0.1.The groups have mean of 1.2, square mean difference of 5.6 and standard deviation of 0.25. Thus, there is an increase in the blood O_2 saturation level in 3rd trimester.

The following table (Table No.-2) showing difference between blood oxygen saturation level at rest among experimental groups during 2nd and 3rd trimesters.

Table-2

Controlled Group	Mean	S.M.D	S.D	t-value
2nd and 3rd trimester	0.2	7.6	0.29	0.69

*significant level at 0.01 (df=9)

Results summarised in table-1 indicates that there is no significant difference between 2nd and 3rd trimesters. The t-value on the dimension blood O_2 saturation level was 0.69. The p-value is 1.01729, which shows that the result is not significant at p<0.1.The groups have mean of 0.2, square mean difference of 7.6 and standard deviation of 0.29. Thus, there is no increase in the blood O_2 saturation level in 3rd trimester.

Conclusion and Recommendations

On plausible explanation, it is found that the groups performing prenatal yoga have increased the level of blood O_2 saturation level as compared to the controlled group. Therefore, this study has come out with the findings that prenatal yoga exercises are beneficial for increasing and maintaining the excellent level of blood oxygen saturation in body during pregnancy. Therefore, it is recommended to perform prenatal yoga exercises under proper supervision and guidance. However, more researches are needed to be done on diverse population to substantiate the same.

References

1. *Langford, E., Khwanda, A., & Langford, K. (2010). Oxygen saturation response to exercise in healthy pregnant women: a simple protocol and normal range. Obstetric medicine, 3(2), 65-8.*
2. *Sunyal DK, Amin MR, Molla MH, Ahmed A, Ferdousi S, Khatun F. Assessment of percentage saturation of haemoglobin with oxygen in arterial blood of pregnant women. J Bangladesh Soc Physiol.2006;1:10-3*
3. *Langford E., Khwanda A., & Langford K. (2010). Oxygen saturation response to exercise in healthy pregnant women: a simple protocol and normal range. Obstetric Medicine, 3(2), 65–68. http://doi.org/10.1258/om.2010.090064.*
4. *Bilo G., Revera M., Bussotti M., Bonacina D., Styczkiewicz K., Caldara G., Parati G. (2012). Effects of Slow Deep Breathing at High Altitude on Oxygen Saturation, Pulmonary and Systemic Hemodynamics. Plos one, 7(11), e49074. http ://doi .org/10.1371/journal.pone.0049074.*
5. *Jubran, A. (2015). Pulse oximetry. Critical Care, 19(1), 272. http :// doi. org/ 10. 1186/s 13054-015-0984-8.*
6. *White, M. (2001). Yoga for pregnancy. International Journal of Childbirth Education, 16(4), 5-9.*