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Research article

EXPECTANT MANAGEMENT OF ENDOMETRIOSIS PAIN REDUCTION OF INFERTILE WOMEN THROUGH YOGA TECHNIQUES: AN OBSERVATIONAL STUDY

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Abstract

The purpose of this study is to find out the reduction of endometriosis pain of infertile women through observational study of yogic management. Among the sample size of 407 infertile women (age groups of 25 to 35 years), 41 endometriosis cases were found. Using the Cohen's formula 32 of them selected 16 in each experimental and control groups from Patanjali Ayurvedic hospital Haridwar, India. All subject were assigned to yoga practice (n = 16) attend 6 yoga classes a week, while the control group (n = 16) attended nothing for 3 months. The pre and post data collection tool was the modified form of self reported endometriosis health profile questionnaire (EHP-30) designed by Oxford University innovations. A randomized trial conducted,'t' test was used for data analysis. A significant decrease in endometriosis pain was found to be at p = 0.047. The result suggests that yoga techniques reduce the endometriosis pain significantly.

Key words: *Endometriosis pain, Yoga, Infertile women.*

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INTRODUCTION

The survey data shows that endometriosis affects 176 million women worldwide regardless of their ethnic and social background (Adamson, G. D., et al., 2010). Endometriosis is a painful infertility problem of women which has significantly effect on women's quality of life and ability to work and reproductive capacity (Ding, Z., & Lian, F. 2015). It is generally acknowledged that an estimated 10% of all women during their reproductive years from the onset of menstrual years to menopause are affected by the endometriosis (Adamson, G. D., et al., 2010, Rogers, P.A., et al., 2009). Endometriosis is the problem of endometrial tissue (like glands or stoma) outside of the uterus and can be found in different areas of reproductive organs (Harris-Glocker, M., & McLaren, J. F. 2013). The symptoms are like pelvic pain, dysmenorrheal (painful menstruation), and dyspareunia (pain before and after intercourse) and these symptoms affect women's general physical, mental, and social well being (Garry, R., Clayton, R., & Hawe, J. 2000). Pelvic pain is found to be common among endometriosis (Harris-Glocker, M., & McLaren, J. F. 2013). Endometriosis lesions can be found anywhere in the pelvic regions like fallopian tube, on the pelvic wall (peritoneum), uterosacral ligaments, the cul-de-sac, rectal-vaginal septum (figure.1) etc (Sinaii,N., et al 2008). The etiology of endometriosis still remains to be unknown and it's possible causes are such as metaphase, cellular immunity, distance metastasis, chronic inflammation of reproductive organs disturb the ovulation(Giroux, V., & Rustgi, A. K. (2017). The risk factor included overweight, eating habits, life style, and environmental factors. ABO blood groups which considered from the studies by Daliri et al., (2018) in the province, southern Iran, Kim, D.A., et al., (2013) in Korea, and Borghese et al., (2010) in France. Demir et al., (2010) in Turkey and Matalliotakis et al., (2009), all have reported that higher risk of endometriosis was found among women of blood group A and lowest risk was seen in blood group O.

METHODOLOGY

Selection of subjects:

Inclusion Criteria:

- Age 25 to 35 years.
- Pain associated Endometriosis.
- Infertile women.

Exclusion criteria:

- Age above 35 years.
- Accidental condition.

Using the Cohen's formula (Telles, S., et al., 2008), 32 endometriosis patients are selected out of 1000 patients, 407 are infertile patients, 41 endometriosis cases, 2 rejected, 32 selected 16 in each experimental and control groups from Patanjali Ayurvedic hospital Haridwar, India. The selection was based on the age group of 25 to 35 and their willingness and cooperation to participate in the experiment. The participant's health

conditions are periodically checked as a part of the regular check up. All subjects were submitted to conventional yoga and kept to the same daily work conditions. All subjects were assigned to yoga practice (n = 16) attended 6 yoga classes each of 60 minutes a week, while the control group (n = 16) attended nothing for 3 months.. Outcome assessments were performed at baseline and at the end of the 3 month period. The pre and post data collection tool used in this study is the modified form of the self reported questionnaire of the endometriosis health profile questionnaire (EHP-30) designed by Oxford University innovation (Minas, V., & Dada, T. 2014). We have also used WHOQOL modified questionnaire incorporating the social and environmental questions. WHO quality of life has five broad domains of instruments covered in our 'self report' endometriosis questionnaire. These domains are;

- Pelvic pain
- Psychological pain
- Level of independence
- Social relationships and
- Environment

DESIGN

Each participant in the yoga group were assessed for 4 separate session's one yoga group and the other control group on separate days. Hence for 32 participants there would be 128 sessions in total. The participants were allocated (Annexure 1 for details) randomly to each of the four sessions. The duration of each session was 35 minutes; 10 minutes pre, 15 minutes during and 10 minutes post.

INVENTORIES

These evaluations consisted of standard inventories, endometriosis. Apart from the interventions, the pain symptoms were also measured at regular intervals. Both collection and data analysis were conducted blind to the experimenter.

STATISTICAL ANALYSIS

The statistical package for social sciences (version 16.0) was used to conduct statistical analyses of the slightly modified oxford university questionnaire. A single and pair (pre – post data) sample't' test was conducted to find the pair differences. A significance level of 0.047 with a confidence interval of 95% was considered to reflect significant differences made in this study.

YOGA TECHNIQUES

The following 4 yoga postures (APMB, 1999) are adopted to reduce the pain among the endometriosis women patients.

1- Pawanmuktasana: Lie down in supine posture.

1.1) Lift your leg up and down up to 30 degree of angle respectively for 5 times.

1.2) Lift both legs together up to 30 degree of angle for 5 times.

1.3) Rotate your legs in both directions clockwise and anticlockwise for 10 times.

1.4) Then hold your both legs together up to 90 degree angle for 10 times.

After this perform Sarvangasana

2- *Sarvangasana (Whole body exercise):* First lie down on a mat and rest your back on the floor. Then you have to try to lift your legs in the upward direction. You can take the support of hands for the same. Try to rest your hands on your back so that they can help you to remain in the steady position. Once legs are up in the air, try to bring them in a straight alignment with the body and stretch as much as one can – Stay in this position for 30 seconds and repeat, if you can.

3- *Kapalabhati (passive inhalation and active exhalation):* Sit on the floor in a comfortable cross legged position. Take a deep breath and then exhale quickly, while making a sound. In other words, it is a forcible exhalation with passive inhalation. Repeat the process 10 times.

4-*Bhramari Pranayam (bee breathing):* Sit in suitable posture back straight close your ear tightly eyes closed deep inhale than, exhalation takes place with bee sound.

Note: The asanas and pranayama protocols are to be followed under the expert guidance of a yoga instructor. The protocols are given in Table 1.

TABLE-I
YOGA THERAPY PROTOCOLS

S.No.	Yogic intervention	Timing
1	Uttanpadasan	5 minutes
2	Padchakrasana	5 minutes
3	Ardhahalasana	10 minutes
4	Sarvangasana	5 minutes
5	Kapalbhati	5 minutes
6	Bhramari Pranayam	5 minutes

RESULTS

The results of the study shows a significant decrease at p=0.047 in the endometriosis pain (Tables 2 and 3). The bar diagram (Fig.5) shows clearly the pre and post values difference.

DISCUSSION

This study discusses about different yoga therapy techniques has an impact on the infertility of endometriosis association with pain. All the participants of yogic protocol found decrease in the pain in their Quality of life in comparison to control group. Experimental group subjects found a very new and effective copping therapy for their endometriosis pain management which cannot be easily managed by medical treatment such as analgesia, hormonal therapy, and surgical intervention (Somigliana, E.,et al., 2003). Yoga therapy is a holistic form of management techniques which plays a greater role in reducing endometriosis pain. Sarvangasana position, of *viparita karani,* relieves backache and improves

the flow of blood to the pelvic region. Even with a decent fertility rate, you can increase the chances of conception by relaxing in this posture, and its importance cannot be over-emphasized (BKS Iyenger, light on yoga). "sarvangasana is the mother of asanas". Hath yoga pradipika says that practicing sarvangasa will keep us young, and preserve the "nector" of life Soothing effects of sarvangasan on body, mind and mood. The practice of relaxation technique such as Savasana (corpse posture), and stretching of the pelvic region by the practice of the abdominal based yoga - Pawanmuktasana technique A qualitative study carried out by Goncalves, A.V., et al., (2016) shows in general the yoga is beneficial to control pelvic pain. They related qualitatively that they were aware of the integration of the body and psyche during yoga practice and that this has helped in managing the pain. Breathing techniques (Pranayama) increased the ability to introspect one self. But they are silent on which type of breathing practice. In our paper, we have carried quantitative analysis by specifically taking about 'kapalabhati' (skull shining) that involves short and strong forceful exhalations and inhalations which happens automatically. Practice of Kapalbhati enhancing the quality of the life and quantity of the reproductive cell (Arreaga, L., & Aracely, J. 2015). Bhramari Pranayam (Bee breath) immediately relieves the muscles tension, anger and anxiety, and conception become well with a more relaxed body and mind. The humming vibrations of the *Bhramari Pranayam* activate the pituitary gland (Arreaga, L., & Aracely, J. 2015).

Further, it is reported that the participants have developed self-knowledge, autonomy, social bonding and self care and have reduced the pain and psychiatric medications. In their paper (Goncalves, A. V., et al., 2017), the p values are quoted without the parametric test values. Like for example the degree of pain was significantly lower among the women who practiced yoga compared with non yoga group ($p=0.0007$), similarly the EHP-30 domains, pain (0.0046), impotence ($p=0.0006$), well-being ($p=0.0009$), image ($p = 0.0087$), work ($p = 0.0027$) and treatment ($p=0.0245$), No significant difference in 2 groups menstrual patterns ($p = 0.96$) (Table 3). We have related our values with WHOQOL questionnaire. The endocrine GnRH (Gonadtrophin releasing hormone) 'hormonal imbalance' related with endometriosis which additionally related with social and environmental dimensions. The degree of pain was significantly lower among women who practiced yoga compared with non yoga group ($p < 0.0001$) after 3 months of yoga practice the symptoms like pelvic pain, irregular menstruation bleeding, infertility and depression may be reduced.

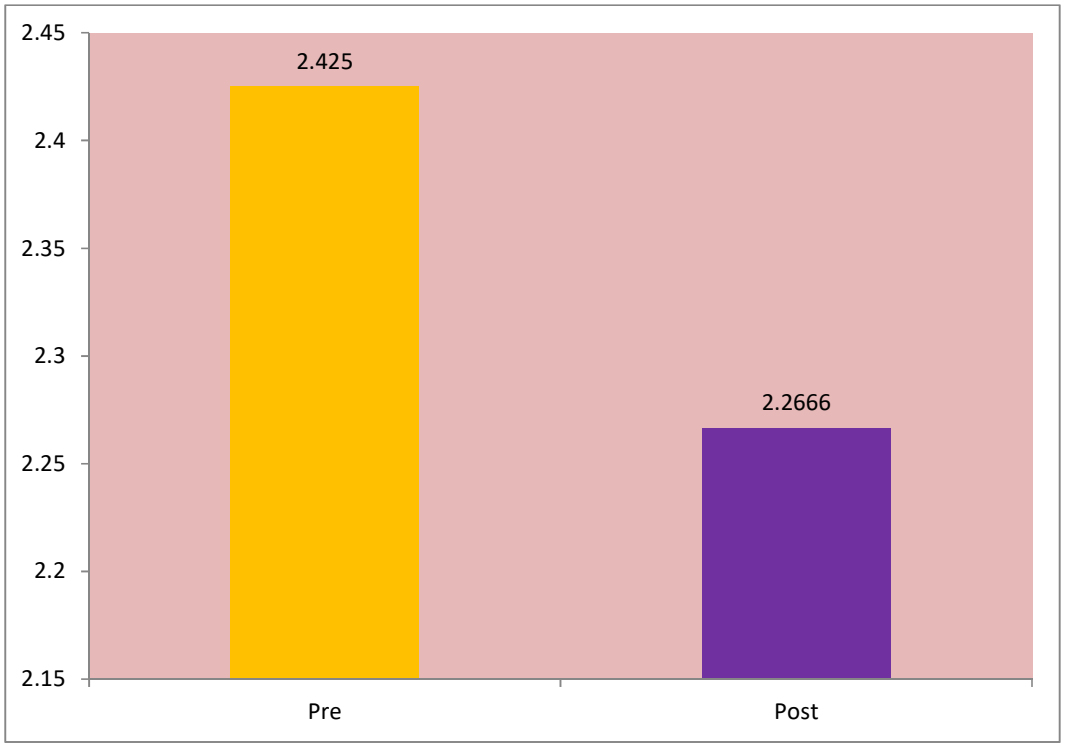
TABLE-II
ENDOMETRIOSIS PRE-POST MEAN VALUE

	Mean	N	Std. Deviation	Std. Error Mean
Pre endometriosis	2.412	30	0.244	0.044
Post endometriosis	2.266	30	0.314	0.057

TABLE-III
PAIRED 'T' TEST VALUE OF ENDOMETRIOSIS PAIN

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre – Post	0.145	0.384	.0701	0.289	0.002	2.078	29	0.047

FIGURE – 1
BAR DIAGRAM SHOWING THE MEAN DIFFERENCES OF ENDOMETRIOSIS



CONCLUSION

The holistic application of yoga therapy techniques shows a significant 6.43 % decrease of pain at p value of 0.047 among the infertile women in the age group of 29±SD years. These values are related to WHOQLF modified questionnaire incorporating from the social and environmental angles. The degree of pain was significantly lower among women who practiced yoga compared with non yoga group ($p < 0.047$) after 3 months of yoga practice. The other beneficial symptoms like pelvic pain, weight gain, irregular menstruation bleeding, infertility, menstrual cramps, stress, depression may be reduced through the regular practice of yoga therapy.

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