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Effect of yoga asanas and swiss ball exercises in treatment of primary dysmenorrhea

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ABSTRACT

Background

Dysmenorrhea is cyclical lower abdominal or pelvic pain which may also radiate to the back and thighs. It occurs before or during menstruation or both. Cramps and pain are experienced in the lower abdominal after regular ovulation is established. It began soon after menarche. It is the common gynecological complaint among adolescent reporting the prevalence range between 50 to 87.8% in India. Further, dysmenorrhea is a critical global health issue in reproductive age women, as it causes school absences, poor academic performance which has a significantly negative effect on daily activities. AIM: To study and compare the effect of yoga asana and swiss ball exercises in the treatment of primary dysmenorrhea.

Methods

In this study, 40 subjects were evaluated or assessed for dysmenorrhea using VAS (Visual Analogue Scale) and VMS (Verbal Multidimensional Scoring system) scale. Also the patients were divided into 2 groups: Group A- received Yoga Asana (Ustrasana [camel pose], Janusirsasana [head-to-knee forward bend] & Dhanurasana [bow pose]) single session / 1 min (or as per tolerance) / 5 repetitions/ 20 sec rest, without holding breath/ 6 weeks. Group B- received Swiss ball exercises (Knee tucks, hamstring curls and back extension exercises) each exercise was given for 10 times/set / 5 sec hold / single session/day / 6 weeks both the groups were evaluated and compared for the presence of Dysmenorrhea.

Results

Group B shows significant difference ($p < 0.05$) in VMS and VAS when compared to Group A.

Conclusion

Six weeks swiss ball exercises had decreased the level of menstrual pain among female with primary dysmenorrhea when compared to yoga asanas.

Keywords: Dysmenorrhea, swiss ball exercises, yoga, Physiotherapy.

INTRODUCTION

The regular intrauterine bleeding of female after puberty is called menstruation, and various physical and mental pains accompanied by menstruation is called dysmenorrhea. [1]

Dysmenorrhea is cyclical lower abdominal or pelvic pain which may also radiate to the back and thighs. It occurs before or during menstruation or both. Cramps and pain are experienced in the lower abdominal after regular ovulation is establish. It began soon after menarche. It is the common gynecologic complain among adolescent. From India, the prevalence range reported is between 50 to 87.8%. [2-5] Furthermore, dysmenorrhea is critical global health issue in reproductive age women, as it causes school absences, poor academic performance, lost work time, an has a significantly negative affect on daily activities. [6] Although the majority of women experience dysmenorrhea at some time, data on the natural history of primary dysmenorrhea over the reproductive life span are lacking. [7]

The first theories on the cause of dysmenorrhea were anatomical. Hippocrates believed that cervical obstruction and subsequent stagnation of menstrual blood was the cause of painful menstruation. The believe in a mechanical obstruction to the release of menstrual blood persisted for a long time. The suggested physiology causes for dysmenorrhea include the excessive production of uterine prostaglandins and the over production of vasopressin, a hormone which stimulates uterine muscular contractions. [8, 9]

There are two type of dysmenorrhea: primary and secondary. Primary dysmenorrhea is also known as painful period or menstrual cramps, which causes pain during menstrual cycle. It usually begins around the time when menstruation begins. It is the commoner in the years after menarche peaking at 20-24 years of age and decreasing thereafter. It occurs in up to 40-50% young women, with severe forms limiting the activity and causing missed school days in 15%. Primary dysmenorrhea usually start within 6-12 month of menarche, once ovulatory cycle are established. The duration of pain is commonly between 8-72 hours. The pain is usually in the pelvis or lower abdomen, which may radiate into low back and upper thigh. Other symptoms include diarrhea, headache, stress, and nausea.

Prostaglandins makes uterus to contract which causes pain during menstrual cycle and also affects those with heavy irregular menstrual cycle, those who attain menarche before 12 years of age, or one with less body weight. [10-13] .Primary dysmenorrhea reportedly stops spontaneously after 1-3 years; however, sometimes it is possible to continue until the childbirth. [14]

Secondary dysmenorrhea is a consequence of the presence of pelvic pathology. The typical age of patient is the 3rd or 4th decade of life and it may be associated with other symptoms such as dyspareunia, dyschezia, endometriosis, pelvic inflammatory disease, inter-uterine devices, uterine tumors, and ovarian cysts and disturbances of menstrual cycle. [10, 11]

Different type of treatment used for dysmenorrhea are medical treatment, physiotherapy treatment and other treatments. Medical treatment: Medical management of primary dysmenorrhea with non-steroidal, mefenamic acid, and naproxen. Non-pharmacological treatments such as physical therapy, yoga, heating pad, massage etc. are shown to be effective. Physical therapy to the abdominal and pelvic floor muscles helps to stretch and strengthen the muscle. Other techniques such as taping and aerobics are also used for the participants with primary dysmenorrhea which effectively could reduce pain and discomfort. Yoga such as cat pose, tiger pose, cobra pose, bow pose and fish pose if practiced regularly help to stretch and strength the back and pelvic floor muscle and has positive effect in female with primary dysmenorrhea. Swiss ball exercises are also effective in reducing the pain intensity and diminished the level of menstrual distress in female with primary dysmenorrhea. [13]

As there are various treatment techniques available, there is a need for a standard treatment protocol, which will have good result in terms of pain reduction and improving the quality of life. [13]

This study is intended to compare two different type of intervention namely yoga asana and Swiss ball exercises to treat female with Primary Dysmenorrhea

METHODOLOGY

Type of study: Comparative study

Type of sampling: Convenient sampling

Place of study: MVP'S College Of Physiotherapy and college of Nursing, Hospital and Research Centre, Nashik.

Sample size: 40; Group A: 20; Group B: 20

Duration – 6 months

Subject included were Age between 18 to 25years, Dysmenorrhea (pain affecting daily activity), Dysmenorrhea for at least one day of menses, Primary dysmenorrhea, VAS of 5-8. Subject were excluded if With irregular or infrequent menstrual cycles (usually outside of the typical range of a 21 to 35 day cycle), Using an intra-uterine contraceptive device (IUCD), Taking oral contraceptive pills (OCP), Gynecological related surgeries, Poly cystic ovarian Disease, Pelvic inflammatory disease, Thyroid problem, Hereditary problem

Yoga asanas in Group A

Three Asana, Ustrasana [camel pose] Janusirsasana [head-to-knee forward bend] and Dhanurasana [bow pose] was prescribed to female with primary dysmenorrhea in Group A. Each single session consists of each of the above Asana for 1 min (or as per tolerance) with 5 repetitions with 20 sec rest between them and normal breath rate, without holding breath/session. They

performed single session/day for 3 days/week up to 6 weeks.

Swiss ball exercises in Group B

Swiss ball exercises i.e Knee tucks, hamstring curls and back extension exercises was prescribed to female with primary dysmenorrhea. Each exercise was given for 10 times/set and 5 sec hold in between. They performed single session/day for 3 days/week, up to 6 weeks.

Outcome measures

VAS (Visual Analogue Scale) and VMS (Verbal Multi Dimensional Scoring) were measured between Group A and Group B

DATA ANALYSIS

- Paired t-test was done to compare the difference in VMS and VAS pre and post treatment within the groups.
- Unpaired t-test was done to compare the difference in VMS and VAS after the treatment between the groups.
- The mean and standard deviation of all the variables were calculated.
- The data was calculated using Graphpad Quickcalcs software.

Table no.1: Comparison of pre and post mean treatment scores of VMS and VAS of group A (YOGA ASANA) using paired t test.

Paired t-test of group A	VMS		VAS	
	PRE	POST	PRE	POST
MEAN	1.60	1.00	6.70	4.85
SD	0.50	0.00	0.66	0.59
P-VALUE	<0.0001		<0.0001	
T-VALUE	5.3385		16.9067	
RESULT	EXTREMELY SIGNIFICANT		EXTREMELY SIGNIFICANT	

Table no 2: Comparison of pre and post mean treatment scores of VMS and VAS of group B (SWISS BALL) using paired t test

Paired t-test of group B	VMS		VAS	
	PRE	POST	PRE	POST
MEAN	1.90	0.95	6.95	4.00
SD	0.55	0.22	0.83	0.79
P-VALUE	<0.0001		<0.0001	
T-VALUE	8.3236		17.3738	
RESULT	EXTREMELY SIGNIFICANT		EXTREMELY SIGNIFICANT	

Table no 3: Comparison of the mean difference in group A and group B for VMS using unpaired t test.

GROUP	SAMPLE SIZE	GROUP A MEAN	GROUP B MEAN	P-VALUE	T-VALUE	SIGNIFICANCE
VMS	40	0.60	0.95	0.0351	2.1850	SIGNIFICANT

Table no.4: Comparison of the mean difference in group A and group B for VAS using unpaired t test.

GROUP	SAMPLE SIZE	GROUP A MEAN	GROUP B MEAN	P-VALUE	T-VALUE	SIGNIFICANCE
VAS	40	1.85	2.95	<0.0001	5.1465	EXTREMELY STATISTICALLY SIGNIFICANT

DISCUSSION

The purpose of study was to compare the effect of yoga asana and swiss ball exercises in treatment of primary dysmenorrhea. In this study 40 patients were randomly allocated to any one of the two treatment groups such that were 20 subjects in each treatment group. Group A received Yoga asana (ustrasana, dhanurasana, janusirsasana) and Group B received swiss ball exercises (knee tucks, hamstring curls, back extension exercises). VMS and VAS were measured both before and after 6 weeks of treatment.

For Group A, VAS and VMS when measured pre and post treatment using paired t-test, showed extremely statistically significant. Changes giving a P-value <0.0001. Thus stating that yoga asana has beneficial effects in reducing pain. Likewise for Group B, VAS and VMS when measured pre and post treatment using paired t-test, showed extremely statistically significant. Changes giving a P-value <0.0001. Thus stating that swiss ball exercises has beneficial effects in reducing pain. When compared between groups (group A and group B), P-value for VMS is 0.0351, which is consider to be statistically significant and P-value for VAS is <0.0001, which is consider to be extremely statistically significant.

According to Vungarala Satyan et al, in his study “effect of yoga asana in management of pain during menstruation” explained that yoga provided a beneficial result in the treatment of irregular menstruation and relieving the pain during menstruation. It promotes the physical relaxation by decreasing the activity of sympathetic nervous system and increased parasympathetic function. Yoga asana helps in reduction of irregular menstruation problems like pain stress, anxiety,

depression, lack of concentration, tension and irritation. [15]

According to Veena Kirthika et al, in her study “effect of yoga asana and gym ball exercise in management of primary dysmenorrhea” explained that pain in general has a disabling nature and makes dysmenorrhea stressful, and it becomes an important irritating factor in the life of lots of women.[13] Group A was intervened with yoga asana such as Ustrasana, Dhanurasana, Janusirsasana. Ustrasana which helped in relieving menstrual cramps by stretching the anterior aspect of trunk, and also by strengthening back region. It improves the flexibility of spine which in turn also improves posture. Dhanurasana stimulates the uterus and relieve back pain during menstruation. It stretches the muscle of the posterior aspect of trunk, ankles, and groin. It also improves the blood flow to the uterus and keeps body relaxed. Janusirsasana stimulates the reproductive organs and therefore menstrual pain are reduced. It stretches groin and hamstrings. This asana also relieves headaches, anxiety, and fatigue.

Group B was intervened with swiss ball exercises such as knee tucks, hamstring curls, and back extension. Knee tucks in swiss ball helps to strengthen the muscle around the abdomen, legs, arms and back region. It also improves balance, stability, and blood supply which helps to ease menstrual pain. Hamstring curls using swiss ball helps to strengthen gluteus maximus, gluteus medius, and gluteus minimus muscles. It also strengthens the abdominal muscle such as transverse abdominis, internal oblique, external oblique. It also improves blood supply and nutrient supply to the lower abdomen and lower back region which helps to relieve menstrual cramps. Back extension in swiss ball builds strength and stability in low back, glutei, and hamstrings. It stretches and

strengthen the core muscles by improving the blood supply, which helps to reduce the menstrual pain. According to Sun-Ho-kim et al, in his study “effect of gym ball exercises on primary dysmenorrhea” explained that swiss ball is an effective exercises for stabilization. [1] Because all the body parts are used for the exercise as compared to other type of exercises. Various movements of swiss ball increases the activity of other muscles and stimulate other body parts, so it is effective on pain relief and blood flow smoothness.

CONCLUSIONS

Six weeks swiss ball exercises have sufficient potential to decrease the level of menstrual pain among females with primary dysmenorrhea when compared to yoga asanas.

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REFERENCES

- [1]. Sun-Ho Kim, Young-Bok Yoon. Effect to Gym ball exercise on primary dysmenorrhea and pulse wave velocity of lower limbs in young women. Research journal of pharmacy and technology vol 10(7), 2017.
- [2]. Omidvar S, Bakouei F, Begum K. Primary dysmenorrhea and menstrual symptoms in Indian female students: Prevalence, impact and management. Glob J Health Science vol 8, 2016, 135-144.
- [3]. Nick Raine-Fenning. Clarifying the roll of three- dimensional transvaginalsonography in reproductive medicine: an evidenced based appraisal. Journal of experimental and clinical assisted reproduction, vol 2(10), 2005,1-18.
- [4]. Sue Reddish, Dysmenorrhoea. Australian family physician vol 11(35), 2006,842-849.
- [5]. Elizabeth Doty, Marjan Attaran. Managing primary dysmenorrhoea. Department of obstetrics and gynaecology, Cleveland clinic foundation,,vol 6(5), 2006.
- [6]. Hyun-Nam Ko, Sam-Sun Le. Effect of yoga on Dysmenorrhea: A systematic review of randomised controlled trails. Altern Integr Med vol 5(4), 2016,1-5.
- [7]. Weissman AM, Hartz AJ, Hansen MD. The natural history of primary dysmenorrhoea: A longitudinal study. International journal of obstetrics and gynaecology vol 111, 2004,345-352.
- [8]. Julie Brown, Strehpen Brown. Exercises for Dysmenorrhoea. The Cochrane Librar, vol 2 (2), 2010.
- [9]. Tu F. Dysmenorrhoea; Contemporary perspectives. Pain volume 2 (2), 2007.
- [10]. Mavrellos D, Saridogan E. Current therapeutic approaches to managing dysmenorrhoea. 2013, 31-4.
- [11]. Ann Elaine Jones, managing the pain of primary and secondary dysmenorrhea. University of wales, Swansea vol 100 (10), 2004, 40-43.
- [12]. Michelle proctor. Diagnosis and management of dysmenorrhoea. British Medical Journal , 2006, 1134-1138.
- [13]. Veena Kirthika S, K Padmanabhan. Efficacy of yoga asana and gym ball exercises in the management of primary dysmenorrhea; A single blind, two group pre-test post-test, randomized controlled trial. Chrismed journal of health res volume 5(2), 2017, 118-122.
- [14]. Salvi Shah, NehaVerma et al. Effect ofof exercises on primary dysmenorrhoea in young females. International Journal Of Physiotherapy and Research, Int J Physiother Res, 4(5), 2016, 1658-62.
- [15]. VungaralaVungarala Satynand, Kaliki Hymavathi. Effect of yoga asanas in the management of pain during menstruation. Journal of Medical Science and Clinical Research, 2(11), 2014, 2969-2974.

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