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ORIGINAL ARTICLE

Role of Vitamin E in the Treatment of Primary Dysmenorrhea

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ABSTRACT

Background: Primary dysmenorrhea is the common gynecologic problems, particularly among adolescent girls. The pain is severe during the first and/or second day of bleeding & usually lasts up to 72 hours. More than 55 to 80% of post-menarche women are thought to experience primary dysmenorrhea. Both vitamin E and a placebo may lessen dysmenorrhea-related pelvic pain, although vitamin E appears to do more significantly

Objective: To find the role of vitamin E in the treatment of Primary dysmenorrhea

Methodology: This randomized placebo-controlled trial was conducted at JankiDevi Jamiat Singh Maternity Hospital Lahore and Sir Syed Hospital Karachi from 1stJune 2021 to 31stMay 2022. Sample size 70 with age 16-28 years with unmarried women; regular menstrual cycles; no urogenital disorders; no previous history of abdominal or pelvic surgery. To check severity of pain we used Visual Analog Scale (VAS) & Cox Menstrual Symptom Scale (CMSS) was used for grading the pain duration. Pain duration was categorized as follows: score 1: ≤0-0.5 hours of pain; score 2: 0.5-1 hours of pain; score 3:>1 hour of pain; score 4: >1 day of pain. Two groups were formed from the sample. Vitamin E 400 units/day in two divided doses was prescribed for the first group to begin the treatment course (5 days in a month,), and Placebo was given to the second. Data was entered and analyzed in SPSS.

Result: Total 70 were enrolled. There were 35 women given Vitamin E and 35 were given placebo. In Group 1, the mean age was 21.57+ 3.35 and in Group 2, the mean age was 22.0+3.05.Before treatment, the mean of VAS pain score was 49.29 in Vitamin E group ad placebo group was 58.71mm and after treatment, the mean of Vas pain score was reduce to 34.60 in vitamin E group and placebo group was 44.48. A significant difference was found the severity of pain and duration between the pre- and post treatment in both groups. Table: 2,3 As the comparison indicates, no significant differences were found regarding severity of pain and duration between the groups. ($p < 0.05$).

This study will help the practioners,gynecologist for in the treatement of primary dysmenorrheal further this will also open the doors for further researches in this field.

Conclusion: Vitamin E helps to relieve pain in primary dysmenorrhea. It can be considered as a universal medicine in the treatment of primary dysmenorrhea since it is a very simple way for pain control with fewer side effects and is cost-effective.

Keywords: Dysmenorrhoea, Vitamin-E, nausea, vomiting, gastrointestinal symptoms

INTRODUCTION

Primary dysmenorrhea is the common gynecologic problems, particularly among adolescent girls. The pain is severe during the first and/or second day of bleeding & usually lasts up to 72 hours.[1]Dysmenorrheic pain may spread to the legs and back and is frequently accompanied by systemic symptoms including nausea, vomiting, and gastrointestinal symptoms like diarrhoea.[2]More than 55 to 80% of post-menarche women are thought to experience primary dysmenorrhea. Thirteen to eighteen percent of them report severe dysmenorrhoea that limits workforce and daily activities .[3, 4]It is the most important cause of recurrent school1absenteeism in adolescent girls.[5]

The lower abdomen may occasionally radiate pain or pressure to the hips, buttocks, and medial thigh as one of the symptoms of PD. Other signs of PD include nausea, vomiting, and loose stools. Breast pain, exhaustion, depression or anxiety, mood swings, impatience, loss of interest, trouble concentrating, changes in eating, changes in sleep, inability to deal with things, and mood fluctuations. Normal menstruation physiologically results in lower metabolic rate and acne.Menstrual pain is experienced by between 30–90% of women, depending in intensity.[6, 7]

Both vitamin E and a placebo may lessen dysmenorrhea-related pelvic pain, although vitamin E appears to do more significantly. Regarding its safety, the study suggests it may be a simple and secure option for treating dysmenorrheas. Pain intensity was less severe after the first and second months of treatment with vitamin E and a placebo than it was before the treatment. During the second month of the study, the study group's mean pain reduction (-2.7 +/- 2.1) was greater than the control group's (-1.8 +/- 2.4) pain reduction.[8]

The present study was performed given the high prevalence of dysmenorrhea among young females along with its negative impact on their quality of life, education & the economic burden related to the frequent absence from work. The aim of the objective to find the role of Vitamin E in the treatment of primary dysmenorrhea.

METHODOLOGY

This randomized placebo-controlled trial was conducted June to December 2020 in Hospital , Lahore. Sample size 70 was calculated with 5% level of significance by taking expecting 55% of primary dysmenorrhea. Witten informed consent was obtained.

Women age 16-28 years with unmarried women; regular menstrual cycles; no urogenital disorders; no previous history of abdominal or pelvic surgery. The participants were given a form to fill about their menstrual cycle.To check severity of pain we used Visual Analog Scale (VAS) & Cox Menstrual Symptom Scale (CMSS) was used for grading the pain duration. The time from the start of uterine cramps to when they ended was recorded as the pain duration.

Pain duration was categorized as follows: score 1: ≤0-0.5 hours of pain; score 2: 0.5-1 hours of pain; score 3:>1 hour of pain; score 4: >1 day of pain. Based on their CMSS scores, the participants were asked to list the period pain that lasted the longest throughout the first three days of their period on specific questionnaires.

In order to assess pain severity, VAS was applied. In the provided form, 10cm (100mm) lines were drawn and graded from 0 (no pain) to 100 (severe pain), and the participants were asked to mark their pain between 0-100 during the first, second, and third days of their cycle (before taking the supplements) on these lines.

Two groups were formed from the sample. Vitamin E 400 units/day in two divided doses was prescribed for the first group to begin the treatment course (5 days in a month, from two days prior to menstruation to the first three days), and Placebo was given to

the second group (5 days in a month, from two days before the menstruation until the first three days).

The subjects were separately treated. They were asked to note their most severe pain and the length of that pain in the first three days using the VAS and CMSS, respectively. Three menstrual cycles of treatment were given before all the data was collected. Finally, the mean pain intensity and duration for the two groups of vitamin E and placebo were compared. First, second, and third month pain.

Data was entered and analyzed in SPSS. Mean and standard deviation to describe quantitative data Pain score pain was presented as frequency & percentage. Data were analyzed by Anova test. P value< 0.05 was considered as significant.

RESULT

Total 70 were enrolled. There were 35 women given Vitamin E and 35 were given placebo. In Group 1, the mean age was 21.57+ 3.35 and in Group 2, the mean age was 22.0+3.05. The age at onset of dysmenorrhea in Group 1, 19.65+1.89 and in Group 2, 20.25+ 2.13. There was no significant difference between the groups. Table: 1

The mean of sleep duration at night and daily exercise was 6.90 hrs and 40.38 min. The severity of symptoms associated with menstrual pain was less significantly after the treatment in comparison with the period before the treatment (P=0.02 and P=0.004 in vitamin E and Placebo groups, respectively)No significant difference in terms of menstrual blood loss between the groups (P=0.543).

Before treatment, the mean of VAS pain score was 49.29 in Vitamin E group ad placebo group was 58.71mm and after treatment, the mean of Vas pain score was reduce to 34.60 in vitamin E group and placebo group was 44.48. A significant difference was found the severity of pain and duration between the pre- and post treatment in both groups. Table: 2,3 As the comparison indicates, no significant differences were found regarding severity of pain and duration between the groups. ($p < 0.05$) Table: 4

Table: 1: Descriptive of Age according to Group

		Group 1 (Vitamin E)	Group 2 (Placebo)
Age	Age	21.57+ 3.35	22.0+3.05

Table 2: Comparison of the mean of pain severity before and after the treatment, based on VAS

	VAS Pain Score		
Groups	Before Treatment	After Treatment	P Value
Vitamin E	49.29	34.60	0
Placebo group	58.71	44.48	0.005

Table 3: Comparison of the mean of pain duration before and after the treatment, based on CMSS

	Duration of Pain score		
Groups	Befor Treatment	After Treatment	P Value
Vitamin E	1.97	1.4	0.003
Placebo group	2.14	1.65	0.01

Table 4: Comparison of the mean of pain severity and duration between the groups

	Vitamin E	Placebo	P value
Mean of pain Severity (mm)	35.2	44.12	0.21
Mean of Pain Duration (h)	1.65	1.9	0.71

DISCUSSION

Primary dysmenorrhea is painful menstrual cramps with no obvious pelvic pathology, starting at the beginning of menstrual period and lasting for 12–48 hours. This pelvic pain occurs only in menstruating women & affects their quality of life.[9]According to various demographics, dysmenorrhea is common anywhere from 50% to 90% of the time. Some studies suggest that it has a frequency of between 74% and 90%.[10]

Although the pathophysiology of primary dysmenorrhea is uncertain, several studies indicate that prostaglandins have a role in both contraction induction and primary dysmenorrhea. Prostaglandin inhibitors provide pain relief to over 80% of the affected women.[11]Thus, one main goal of treatment is to decrease the level of prostaglandin in the body.

Vitamin E is used for improving dysmenorrhea. Reduced progesterone during the luteal phase of the menstrual cycle can cause arachidonic acid, phospholipid oxidation, and enzyme lysis. These changes all lead to increased production of prostaglandins, which will consequently stimulate uterine cramps & contraction. Vitamin E decreases the release of arachidonic acid and its conversion to prostaglandins and lowers phospholipid peroxidation due to its antioxidant capabilities. As a result, it can significantly contribute to reducing the severity of dysmenorrhea.[12-14]

Vitamin E was shown to decrease primary dysmenorrhea-related pain severity and duration as well as menstrual blood loss**.**Several studies have investigated the effects of vitamins D & E or ginger on primary dysmenorrhea.[15-17]But this study found a role for vitamin E in the management of dysmenorrhea. In this study, vitamin E was given to one group, and a placebo was given to the other group. According to our data, the vitamin E group's pain level was lower than that of the placebo group. Our results similar with those of numerous other studies. In one study, the severity of primary dysmenorrhea was examined, and it was concluded that vitamin E had a significant impact on the severity and length of dysmenorrhea.[18]

Kashanian et al. conducted a single-blind clinical trial on 94 women who received 400 IU vitamin E per day and concluded that vitamin E and placebo can reduce the severity of pain in primary dysmenorrhea; however, vitamin E reduced the pain severity more than did placebo.[8]

In 2018 study,[16] showed that vitamin E and omega-3 together can reduce the intensity of dysmenorrheal pain.. Omega-3 has been shown to reduce the severity of dysmenorrhea by inhibiting prostaglandin formation. They found that the combination of vitamin E and omega-3 considerably reduced the intensity of pain across all of their groups, with the omega-3 and vitamin D groups experiencing the greatest reduction in pain, followed by the vitamin E group.In this study, the mean age of the participants was 21.57 in Group 1 and 22.03 in Group 2. There was a significant difference between severity of pain and duration between the groups. . Similar result were found in 2018 or 2019 study.[5, 16]

In this study, there were statistically significant reductions in VAS pain score and pain duration in Vitamin E and Placebo group. Before treatment, the mean of VAS pain score was 49.29 in Vitamin E group ad placebo group was 58.71mm and after treatment, the mean of Vas pain score was reduce to 34.60 in vitamin E group and placebo group was 44.48. A significant difference was found the severity of pain and duration between the pre- and post treatment in both groups before and after treatment.. As compare to one study, the average VAS score for dysmenorrhea in the entire study population was 7.13±0.80 before the intervention; the mean VAS score after the first and second months of supplement use was 5.37±1.51 and 4.93±1.48 and also significant between the groups.[15]

CONCLUSION

Vitamin E helps to relieve pain in primary dysmenorrhea. It can be considered as a universal medicine in the treatment of primary dysmenorrhea since it is a very simple way for pain control with fewer side effects and is cost-effective.

REFERENCES

1. Machado AFP, Perracini MR, Rampazo ÉP, Driusso P, Liebano RE. Effects of thermotherapy and transcutaneous electrical nerve stimulation on patients with primary dysmenorrhea: A randomized, placebo-controlled, double-blind clinical trial. Complementary Therapies in Medicine. 2019;47:102188.

2. Ayşegül Ö, Seda A, ŞEVKET O, ÖZDEMİR M, İLHAN G, DAVUTOĞLU E. A randomized controlled study of vitamin D in the treatment of primary dysmenorrhea. Duzce Medical Journal. 2019;21(1):32-6.
3. Sahin N, Kasap B, Kirli U, Yeniceri N, Topal Y. Assessment of anxiety-depression levels and perceptions of quality of life in adolescents with dysmenorrhea. Reproductive health. 2018;15(1):1-7.
4. Alsaleem MA. Dysmenorrhea, associated symptoms, and management among students at King Khalid University, Saudi Arabia: An exploratory study. Journal of family medicine and primary care. 2018;7(4):769.
5. Kanwal R, Masood T, Awan WA. ASSOCIATION BETWEEN SYMPTOMS OF PRIMARY DYSMENORRHEA, PHYSICAL FUNCTIONS AND WORK PRODUCTIVITY: soi: 21-2017/re-trjvol03iss01p90. The Rehabilitation Journal. 2019;3(01):91-4.
6. Ameade EPK, Amalba A, Mohammed BS. Prevalence of dysmenorrhea among University students in Northern Ghana; its impact and management strategies. BMC Women's Health. 2018;18(1):1-9.
7. Kho KA, Shields JK. Diagnosis and management of primary dysmenorrhea. Jama. 2020;323(3):268-9.
8. Kashanian M, Lakeh MM, Ghasemi A, Noori S. Evaluation of the effect of vitamin E on pelvic pain reduction in women suffering from primary dysmenorrhea. The Journal of reproductive medicine. 2013;58(1-2):34-8.
9. Scholz J, Finnerup NB, Attal N, Aziz Q, Baron R, Bennett MI, et al. The IASP classification of chronic pain for ICD-11: chronic neuropathic pain. Pain. 2019;160(1):53.
10. Ferries-Rowe E, Corey E, Archer JS. Primary dysmenorrhea: diagnosis and therapy. Obstetrics & Gynecology. 2020;136(5):1047-58.
11. Esmaeilpour M, Ghasemian S, Alizadeh M. Diets enriched with whole grains reduce premenstrual syndrome scores in nurses: an open-label parallel randomised controlled trial. British Journal of Nutrition. 2019;121(9):992-1001.
12. Karacin O, Mutlu I, Kose M, Celik F, Kanat-Pektas M, Yilmazer M. Serum vitamin D concentrations in young Turkish women with primary dysmenorrhea: a randomized controlled study. Taiwanese Journal of Obstetrics and Gynecology. 2018;57(1):58-63.
13. Saboori S, Falahi E, Birjandi M, Hesami S, Veisi F, Hosseini MA, et al. Could co-administration of vitamins E and C increase total antioxidant capacity? A systematic review and meta-analysis. Current Topics in Nutraceutical Research. 2018;16(4):253-63.
14. Daily JW, Zhang X, Kim DS, Park S. Efficacy of ginger for alleviating the symptoms of primary dysmenorrhea: a systematic review and meta-analysis of randomized clinical trials. Pain Medicine. 2015;16(12):2243-55.
15. Pakniat H, Chegini V, Ranjkesh F, Hosseini MA. Comparison of the effect of vitamin E, vitamin D and ginger on the severity of primary dysmenorrhea: a single-blind clinical trial. Obstetrics & gynecology science. 2019;62(6):462-8.
16. Sadeghi N, Paknezhad F, Rashidi Nooshabadi M, Kavianpour M, Jafari Rad S, Khadem Haghighian H. Vitamin E and fish oil, separately or in combination, on treatment of primary dysmenorrhea: a double-blind, randomized clinical trial. Gynecological Endocrinology. 2018;34(9):804-8.
17. Bahrami A, Avan A, Sadeghnia HR, Esmaeili H, Tayefi M, Ghasemi F, et al. High dose vitamin D supplementation can improve menstrual problems, dysmenorrhea, and premenstrual syndrome in adolescents. Gynecological Endocrinology. 2018;34(8):659-63.
18. Negi R, Sharma SK, Gaur R, Bahadur A, Jelly P. Efficacy of ginger in the treatment of primary dysmenorrhea: a systematic review and meta-analysis. Cureus. 2021;13(3).