



Medical Synopses

Medical synopsis: The use of vitamin E and omega 3 fatty acids for the management of primary dysmenorrhea



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The synopsis is based on the following article: “Vitamin E and fish oil, separately or in combination, on treatment of primary dysmenorrhea: a double-blind, randomized clinical trial. Sadeghi N, Paknezhad F, Nooshabadi R, et al. *Gynecol Endocrinol*. 2018 14:1-5. <https://doi.org/10.1080/09513590.2018.1450377>

1. Design

Randomized double-blinded placebo-controlled trial.

2. Participants

Women included in this trial were between 18–25 years of age and were recruited from the student cohort at the Ahvaz Jundishapur University of Medical Sciences in Iran. The inclusion criteria included women who experienced primary dysmenorrhea, had defined painful menstruation, and were without any known pelvic diseases. A total of 150 women were assessed for eligibility, of the 150 women, 100 met the inclusion criteria and were included in the trial.

3. Intervention

The 100 women were randomised to into one of the four research arms of omega-3 fatty acid intervention (n = 25), vitamin E (n = 25), vitamin E with omega 3 fatty acids (n = 25), or placebo (n = 25). The interventions involved three hundred milligrams of omega-3 capsules administered daily (180 mg EPA and 120 mg DHA) and vitamin E (Alfa-tocopherol acetate) was administered at 200 international units (IU), daily. During the eight week trial, the participants did not change from their usual diet and physical activity regimes.

4. Comparator

A placebo arm of 25 women with primary dysmenorrhea.

5. Major outcomes

- 1 Reduction of dysmenorrhea was reported in all three intervention arms.
- 2 Vitamin E and omega 3 fatty acids arms reduce severity of pain from dysmenorrhea.
- 3 Combination of omega 3 fatty acids with vitamin E interventions effectively reduced dysmenorrhea compared to other intervention arms.
- 4 Synergistic benefits occurred due to the combination of omega 3 fatty acids and vitamin E through reduction of inflammatory process and antioxidant effects.

6. Settings

Ahvaz Jundishapur University of Medical Sciences dormitories in Iran.

7. Conclusion

This trial identified that the use of vitamin E in combination with omega 3 fatty acids, administered daily for five days before menstruation showed significance in reducing the intensity of pain experienced by women with primary dysmenorrhea. The findings of the trial indicate that supplementation of these nutrients may be of benefit to women with dysmenorrhea and could be employed in treatment regimens for these women.

8. Commentary

Dysmenorrhea defined as spasmodic painful cramping in the pelvic region before and/or during menstruation is one of the most commonly reported menstrual symptoms experienced by women of reproductive age [1]. Dysmenorrhea is categorized into two distinct conditions, primary dysmenorrhoea referring to dysmenorrhea without a known medical identifiable cause and secondary dysmenorrhea defined as menstrual pain with the presence of a medical cause [2]. Currently, the prevalence of primary dysmenorrhea has been reported at 16%–91% in women of reproductive age

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[3], however it is difficult to determine due to variances in medical definitions and differential diagnose processes required to determine if the menstrual pain being experienced is not from a reproductive disease [4]. Women with dysmenorrhea, report an extensive range of negative implications including poor quality of life, reduce sleep quality, mental health concerns, fatigue, and bowel irregularities [1]. These implications and symptoms are often accompanied by the menstrual pain, causing a significant negative impact on the women's wellbeing during this time of the menstrual cycle.

While new research is coming to light on the pathophysiology of dysmenorrhea, further research is still required. To date, research has identified that inflammatory uterine prostaglandins play a key part in the pathogenesis and pathophysiology and as such significantly contribute to the pain experienced by women [1]. During the bleed of the menstrual cycle, there can be an over production of prostaglandin F₂ (PGF₂) from the sloughed endometrial, thus resulting in an increase in the level of hypoxia and ischemia of the uterine tissues and thus causing pain [1]. Targeting the increased concentration of prostaglandins [5], can be a primary aim in integrative medicine practice through using nutritional medicine such as vitamin E and omega 3 fatty acids. In reference to the use of these nutrients for the management of dysmenorrhea, they interact in reducing inflammatory processes by limiting the conversion of arachidonic acid to PGF₂ (pro-inflammatory) while allowing for an increase in prostaglandin I₂ which has a lesser inflammatory activity [6,7]. Additionally vitamin E has an antioxidant action by preventing the peroxidation of phospholipids as well as limiting the release of arachidonic acids and thus its conversion to PGF₂. Other trials in this area have primarily addressed single treatment with vitamin E or omega 3 fatty acids and have shown similar benefits as presented in Sadeghi et al (2018) [8]. Ziaei et al (2005) reported that the vitamin E dosages from 200IU for two days prior to menstruation and during the first few days of menstruation was effective in reducing the duration of pain and may also assist in reducing excessive blood loss [6]. While omega 3 fatty acids fatty acids such as fish oils, are well researched for their anti-inflammatory activity through the prevention of PGF₂ synthesis [8].

9. Clinical significance

While the discussed studies shows benefit of omega 3 fatty acids and vitamin E individually in reducing pain from primary dysmenorrhea, the trial conducted by Sageghi et al (2018), showed significant benefit when combining both treatments for a

period of five days prior to menstruation in decreasing the intensity of pain being experience by women with primary dysmenorrhea [8]. Combining vitamin E and omega 3 fatty acids alongside other anti-inflammatory treatments including complementary and conventional standard care may assist in reducing inflammatory processes in cases of primary dysmenorrhea and provide women with a reduction in pain and its duration during the menstrual cycle.

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Conflict of interests

The authors do not have any conflicts of interests to declare. All authors have made contributions to this manuscript. RR conducted the trial overview and drafted the commentary. JS contributed to the commentary and a critical review of the medical synopsis.

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