ejpmr, 2025, 12(8), 01-04

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

SJIF Impact Factor 7.065

Review Article

ISSN (O): 2394-3211

ISSN (P): 3051-2573

THE ROLE OF ORAL MAGNESIUM IN REDUCING SYMPTOMS OF PRIMARY DYSMENORRHEA

Mohammad Barakat*[1], Maisoon Dayoub[2] and Hasan Saleh[2]

[1]Master Student, Department of Obstetrics and Gynaecology, Lattakia University, Latakia, Syria.
[2]Professor, Department of Obstetrics and Gynaecology, Lattakia University, Latakia, Syria.

***Corresponding Author: Mohammad Barakat**

Master Student, Department of Obstetrics and Gynaecology, Lattakia University, Latakia, Syria.

Article Received on 18/06/2025 **Article Revised on 07/07/2025** **Article Accepted on 28/07/2025**

ABSTRACT

Introduction: primary dysmenorrhea is menstrual pain which occurs in the absence of demonstrable pelvic disease. It affects women's quality of life and in severe cases can cause weakness and inefficiency. Dysmenorrhea is the most common problem in women with normal ovulatory cycles and no pelvic pathology which occurs in 80-90% in adolescents and young females So, finding appropriate and effective alternatives for its treatment is important. The most common treatment for relieving primary dysmenorrhea is use of nonsteroidal anti-inflammatory drugs (NSAIDs) with failure rate of about 20%-25%, as well as occurrence of certain side effects. Therefore, many researchers are trying to find other treatments such as complementary and alternative therapies and numerous studies are being conducted on this matter. **Objectives:** The role of oral magnesium in reducing symptoms of primary dysmenorrhea. **Materials and Methods:** an Experimental pilot study (prospective) was involved 100 patients among 19-35 years old, presented with primary dysmenorrhea at lattakia university hospital between 2024-2025. After examination and assessing the menstrual symptoms and the history of symptoms and exclusion the secondary dysmenorrehea, and BMI calculating, was gave them oral magnesium380mg for 3 months. we used a Vissual Analogue ScoreVAS to determine the severity of the pain. **Results:** the current study showed that after initiation of treatment by magnesium,a decrease in Vissual Analogue ScoreVAS was observed with statistically significant.the decrease after 3 months of treatment 88%. **Conclusions:** The results showed that magnesium 380 mg can reduce the severity of menstrual symptoms in women with primary dysmenorrhea.

KEYWORDS: Magnesium, Primary dysmenorrhea.

INTRODUCTION

Primary dysmenorrhea is a painful menstruation that happens in the absence of pelvic disease[1,2] and affects women's quality of life.[3,4] It is often accompanied with headache, diarrhea, fatigue, irritability, depression, insomnia, and a general sense of anxiety. The prevalence of primary dysmenorrhea is estimated to be from 50% to 90%. The exact cause of primary dysmenorrhea is unknown although the widely accepted theory is the over production of uterine prostaglandins.[4] Although anti-prostaglandin drugs are effective in the treatment of dysmenorrhea, their long-term use may cause some side effects such as nausea, gastritis, renal papillary necrosis, and decreased renal blood flow.[5,6] Thus, most people are now looking for alternative pain relievers.[7] Magnesium deficiency can mimic many disorders including fatigue, irritability, weakness, and dysmenorrhea. Magnesium influences the contractility and relaxation of the uterine smooth muscle and may inhibit the synthesis of prostaglandins.[8] The magnesium level in women with primary dysmenorrhea was low.[9-13] Therefore, it is possible that magnesium can reduce the severity of menstrual pain and its associated symptoms by decreasing the level of prostaglandins. In addition, it regulates the entry of calcium into the cell, which acts as a physiological antagonist of calcium. Magnesium is also an N-methyl-Daspartate receptor antagonist, which may be effective in the prevention and treatment of pain.[8] The results of a clinical review showed that using magnesium in some trials could reduce dysmenorrhea and the level of prostaglandins in the blood.[14] Although magnesium in combination with calcium can decrease menstrual pain[15], the minimal therapeutic dose of magnesium is unclear yet.

MATERIALS AND METHODS

an Experimental pilot study (prospective) was involved 100 patients among 19-35 years old, presented with primary dysmenorrhea at lattakia university hospital between 2024-2025. All participants gave written informed consent before data collection, women with primary dysmenorrhea were included in the study. On the other hand, women with secondary dysmenorrhea and any other diseases were excluded from the study.

Eligible women were randomly allocated to one of the two groups. Following criteria were also required for the study participants: having regular menstrual periods, having moderate or severe primary dysmenorrhea (pain score of 5-9 using a visual analog scale (VAS) in previous cycles), and being single On the other hand, women with a history of any chronic diseases or those using oral contraceptive pills or vitamin supplements were excluded from the study. Then, the young girls were asked to record their pain intensity in the checklist (a diary) during two consecutive cycles and use any medication for relieving pain such as ibuprofen while not taking any other pain relievers, and they had to record every taken pill in the diary. The diary also included a table to record pain intensity and sick leaves (hours) due to pain during menstruation. Measurements The questionnaire in this study included three sections. In the first section, the women were asked to state their socio-demographic and medical information, dysmenorrhea status, and personal habits. The second section encompassed the VAS, and the last section dealt with dysmenorrhea using the Verbal Multidimensional Scoring System for Assessment of Dysmenorrahea**.** Using a 10-cm line, the VAS represented the continuum of the women's opinion about the degree of pain. One extreme of the line represented 'unbearable pain' while the other extreme represented 'no pain at all'. The participants were asked to rate the degree of pain by making a mark on the line. The received scores from the scale were classified into mild, moderate, and severe dysmenorrhea if the scores were in the range of 1-3, 4-7, and 8-10, respectively. The participants were asked to take the magnesium 380mg pills regularly (one pill a day) from day 15 of their cycle until the day with no menstrual pain in the following cycle and to record the pill taking daily in the diary. The severity of menstrual symptom scores at each cycle was calculated as the mean score of symptoms two days before and three days after the start of menstruation. The average of the outcomes during the two pre-intervention cycles was considered as baseline values that were compared to the average of those recorded during the three cycles after the intervention.

Statistical analysis: All patients' data entered using computerized statistical software; Statistical Package for Social Sciences (SPSS) version 23 used in this study. Descriptive statistics presented as (mean ± standard deviation) and frequencies as percentages. Multiple contingency tables conducted and appropriate statistical tests performed, Chi-square used for categorical variables (Fishers exact test used when expected variable was less than 20% of total) and t-test used to compare between two means. One-way ANOVA analysis used to compare between more than two means. In all statistical analysis, level of significance (p value) set at ≤ 0.05 and the result presented as tables and/or graphs. Of the 100 women's randomized into the groups, No side effect was reported by any of the subjects in the groups. There was no considerable difference between the groups in any of the baseline characteristics. Mean ± SD of their age was 24±0.2 and their body mass index (BMI) was 23.5±3.6. About two-thirds (75%) reported a family history of dysmenorrhea table 1.

Characteristics	
Age in years, mean ± SD	24±0.2
BMI in kg/m2, mean ± SD	23.5±3.6
Family history of dysmenorrhea, No. (%)	75(75%)

Table 2 presents the mean and SD of dysmenorrhea symptoms Based on the data, magnesium 380 mg could significantly reduce all areas of dysmenorrhea symptoms (P<0.001).

Magnesium 380 mg could also significantly reduce back pain (81%), abdominal pain (87%), and decrease in Vissual Analogue Score VAS was observed with statistically significant. the decrease after 3 months of treatment 88%.

Pain intensity (VAS, 0-10)	**Mean ± SD**	**P Value**
Baseline	9.32±0.1	0.001
Under-intervention	1.23±0.2	

DISCUSSION

the current study showed that after initiation of treatment by magnesium, a decrease in Vissual Analogue Score VAS was observed with statistically significant. the decrease after 3 months of treatment 88%. The results showed that magnesium 380 mg can reduce the severity of menstrual symptoms in women with primary dysmenorrhea. Dysmenorrhea is the most common problem in women with normal ovulatory cycles and no pelvic pathology which occurs in 20%-90% in adolescents and young females.[25] So, finding appropriate and effective alternatives for its treatment is important. The most common treatment for relieving primary dysmenorrhea is use of nonsteroidal anti-inflammatory drugs (NSAIDs) with failure rate of about 20%-25%, as well as occurrence of certain side effects.[26] Therefore, many researchers are trying to find other treatments such as complementary and alternative therapies and numerous studies are being conducted on this matter. Nutrition is one of the most important factors influencing the quality of life. Nutritional and metabolic conditions may have an important role in the etiology and treatment of menstrual disorders. Menstrual pain is relieved by good diet. Low mineral and vitamin intakes have been mentioned in the Iranian students' diet. For example, Saeedian Kia et al indicated that there are lower serum levels of Ca and Mg in women with pre-menstrual syndrome (PMS) compared with their healthy controls.[25] The regulation of nutrient intake often changes across the menstrual cycle and is affected by the menstrual cycle hormone, dietary treatments are numerous and still require more investigations. Furthermore, the dietary surveys of people in Europe and the United States revealed that the rate of magnesium intake is lower than the recommendation.[26] Although the positive effects of

magnesium supplementation on the pain reduction of women with primary dysmenorrhea have been already shown in some clinical trials[26,27], the literature lacks any study comparing the two doses of magnesium. In their study on 30 young girls with dysmenorrhea, Benassi et al used 4.5 mg oral magnesium pidolate for three days from the 7th day before the onset of menses until the 3rd day of menstruation The results demonstrated that magnesium could significantly decrease dysmenorrhea on the first day of menstruation and this reduction continued until six cycles[26], which is in line with our findings. To compare the effect of magnesium with vitamin B6, Ebrahimi et al enrolled 126 young girls and divided them into three groups of magnesium, vitamin B6, and placebo. Their results showed that although magnesium could significantly reduce some symptoms of dysmenorrhea such as craving, water retention, and anxiety, the effect of magnesium in terms of somatic changes and depression was equal to or less than that of vitamin B6.[28] This discrepancy between our results and those of Ebrahimi et al may be because they used magnesium 250 mg and different scales for assessing dysmenorrhea symptoms. Likewise, Fathizadeh et al reported that a combination of Mg and vitamin B6 was more effective than Mg and placebo for decreasing PMS symptoms.[29] In a casecontrol study, Saeedian Kia et al found that magnesium deficiency was more prevalent in women with PMS.[25]

CONCLUSIONS

The results showed that magnesium380mg can reduce the severity of menstrual symptoms in women with primary dysmenorrhea with no adverse events Therefore, the use of magnesium stearate is recommended to reduce dysmenorrhea in young girls.

REFERENCES

1. Weissman AM, Hartz AJ, Hansen MD, Johnson SR. The natural history of primary dysmenorrhoea: a longitudinal study. BJOG, 2004; 111(4): 345-352. doi:10.1111/j.1471-0528.2004.00090.x
2. Proctor M, Farquhar C. Diagnosis and management of dysmenorrhoea. BMJ, 2006; 332(7550): 1134-1138. doi:10.1136/ bmj.332.7550.1134
3. Rapkin AJ, NLPPaDIBJ, ed. Berek and Novak's Gynecology. Baltimore: Lippincott Williams & Wilkins, 2012; 506-534.
4. French L. Dysmenorrhea. Am Fam Physician, 2005; 71(2): 285-291.
5. Morrison BW, Daniels SE, Kotey P, Cantu N, Seidenberg B. Rofecoxib, a specific cyclooxygenase-2 inhibitor, in primary dysmenorrhea: a randomized controlled trial. Obstet Gynecol, 1999; 94(4): 504-508. doi:10.1016/s0029-7844(99)00360-9
6. Smith WL, Langenbach R. Why there are two cyclooxygenase isozymes. J Clin Invest, 2001; 107(12): 1491-1495. doi:10.1172/ jci13271
7. Proctor ML, Murphy PA. Herbal and dietary therapies for primary and secondary dysmenorrhoea. Cochrane Database Syst Rev, 2001; (3): CD002124. doi:10.1002/14651858.cd002124
8. Walker SM. In vitro synthesis of prostaglandin F2a by human endometrium. Abstracts of the Twenty-first British Congress of Obstetrics and Gynecology, 1977; 37. Sheffield. Website available at: http: //iasj.net/iasj?func=fulltext&aId=72026.
9. Abass MQ. Evaluation of Serum Magnesium, Hemoglobin and body mass index in Dismenoreric Women in Tikrit City /Iraq. Tikrit J Pure Sci, 2012; 17(4): 59-62.
10. Seifert B, Wagler P, Dartsch S, Schmidt U, Nieder J. [Magnesium--a new therapeutic alternative in primary dysmenorrhea]. Zentralbl Gynakol, 1989; 111(11): 755-760.
11. Fontana-Klaiber H, Hogg B. [Therapeutic effects of magnesium in dysmenorrhea]. Schweiz Rundsch Med Prax, 1990; 79(16): 491- 494.
12. Chhabra S, Gokhale S, Yadav S. Primary dysmenorrhea and serum magnesium in young girls a pilot study. J Gynecol, 2017; 1(3): 1-9.
13. Henrotte JG, Raveau F, de Traverse PM. [Variations of blood magnesium related to sex and their relation to excitability and fatique]. C R Seances Soc Biol Fil, 1973; 167(6): 843-847.
14. Proctor M, Farquhar C. Diagnosis and management of dysmenorrhoea. BMJ, 2006; 332(7550): 1134-1138. doi:10.1136/ bmj.332.7550.1134
15. Mohammad-Alizadeh Charandabi S. Mirghafourvand M, Nezamivand- Chegini S, Javadzadeh Y. Calcium with and without magnesium for primary dysmenorrhea: a double-blind randomized placebo controlled trial. Int J Womens Health Reprod Sci, 2017; 5(4): 332-338. doi:10.15296/ijwhr.2017.56
16. Proctor ML, Murphy PA. Herbal and dietary therapies for primary and secondary dysmenorrhoea. Cochrane Database Syst Rev, 2001; (3): CD002124. doi:10.1002/14651858.cd002124
17. Larroy C. Comparing visual-analog and numeric scales for assessing menstrual pain. Behav Med, 2002; 27(4): 179-181. doi:10.1080/08964280209596043
18. Gierk B, Kohlmann S, Kroenke K, et al. The somatic symptom scale-8 (SSS-8): a brief measure of somatic symptom burden. JAMA Intern Med, 2014; 174(3): 399-407. doi:10.1001/ jamainternmed.2013.12179
19. Kisters K. What is the correct magnesium supplement? Magnes Res, 2013; 26(1): 41-42. doi:10.1684/mrh.2012.0326
20. Kharaghani R, Damghanian M. The prevalence of dysmenorrhea in Iran: a systematic review and meta-analysis. Iran Red Crescent Med J., 2017; 19(3): e40856. doi:10.5812/ircmj.40856
21. Dawood MY. Nonsteroidal anti-inflammatory drugs and changing attitudes toward dysmenorrhea. Am J Med, 1988; 84(5a): 23-29. doi:10.1016/0002-9343(88)90473-1
22. Yu C. Contribution of Dietary Supplements to the

Nutritional Status of College Students [dissertation]. Connecticut: University of Connecticut, 2011.
23. Tarighat-Esfanjani A, Mahdavi R, Ghaemmaghami J, Safaeian A. Comparing nutritional status of college female students living on and off campus in Ardabil, 1999. J Ardabil Univ Med Sci, 2003; 3(9): 44-51. [Persian].
24. Bendich A. The potential for dietary supplements to reduce premenstrual syndrome (PMS) symptoms. J Am Coll Nutr, 2000; 19(1): 3-12. doi:10.1080/07315724.2000.10718907
25. Saeedian Kia A, Amani R, Cheraghian B. The association between the risk of premenstrual syndrome and vitamin D, calcium, and magnesium status among university students: a case control study. Health Promot Perspect, 2015; 5(3): 225-230. doi:10.15171/ hpp.2015.027
26. Benassi L, Barletta FP, Baroncini L, et al. Effectiveness of magnesium pidolate in the prophylactic treatment of primary dysmenorrhea. Clin Exp Obstet Gynecol, 1992; 19(3): 176-179.
27. Walker AF, Marakis G, Christie S, Byng M. Mg citrate found more bioavailable than other Mg preparations in a randomised, doubleblind study. Magnes Res, 2003; 16(3): 183-191.
28. Ebrahimi E, Khayati Motlagh S, Nemati S, Tavakoli Z. Effects of magnesium and vitamin b6 on the severity of premenstrual syndrome symptoms. J Caring Sci, 2012; 1(4): 183-189. doi:10.5681/jcs.2012.026
29. Fathizadeh N, Ebrahimi E, Valiani M, Tavakoli N, Hojat Yar M. Evaluating the effect of magnesium and magnesium plus vitamin B6 supplement on the severity of premenstrual syndrome. Iran J Nurs Midwifery Res, 2010; 15(Suppl 1): 401-405.