



EFFECTIVENESS OF GINGER AND MEFENAMIC ACID ON PAIN RELIEF IN PRIMARY DYSMENORRHEA AMONG NURSING STUDENTS OF NEPALGUNJ NURSING CAMPUS

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ABSTRACT

Introduction: Dysmenorrhea is a prevalent menstrual pain affecting adolescent girls and young women worldwide, impacting their physical, psychological, social, and academic well-being. Nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly used for pain relief, but herbal medications like ginger have shown promise. This study aims to compare the effectiveness of ginger and mefenamic acid in alleviating primary dysmenorrhea among nursing students, focusing on pain reduction and adverse reactions. **Aims:** The study aims to assess the efficacy of ginger and mefenamic acid in pain relief among nursing students with primary dysmenorrhea and to observe the prevalence of adverse reactions associated with each treatment. **Methods:** A prospective cross-sectional study was conducted among nursing students of Nepalgunj Nursing Campus. Participants were administered mefenamic acid and ginger capsules during consecutive menstrual cycles, and pain severity was assessed using a verbal multi-dimensional scoring system (VMSS). Data were analyzed using SPSS 20.0. **Results:** Out of 120 participants, 78 (65%) reported dysmenorrhea. Both mefenamic acid and ginger showed comparable efficacy in reducing pain severity, with minimal adverse effects observed in the ginger group. The majority of participants experienced moderate pain, with significant pain relief observed in both treatment groups. **Conclusion:** Ginger demonstrates effectiveness comparable to mefenamic acid in relieving pain associated with primary dysmenorrhea among nursing students, with fewer adverse effects. These findings underscore the importance of considering alternative treatments like ginger for effective management of dysmenorrhea, thus advocating for broader education and awareness among healthcare professionals and patients.

KEYWORDS: Dysmenorrhea, menstrual pain, mefenamic acid, ginger, nursing students.

INTRODUCTION

Dysmenorrhea is the most common menstrual pain experienced by adolescent girls and young women which affects the physical, psychological, social and academic status.^[1,2] According to the World Health Organization's (WHO) systemic review, the prevalence rate of dysmenorrhea may vary from 16.8% to 81%.^[3] Cramp-like pain that occurs before or during menstrual period of young women affects daily activities and quality of life with or without headache, fatigue, vomiting, diarrhea and is caused by prostaglandin-induced uterine contractions. The most reliable and effective treatment for dysmenorrhea is to inhibit prostaglandin synthesis with nonsteroidal anti-inflammatory drugs (NSAIDs).^[4] Some studies have found that pain relief of herbal medications is more effective than NSAIDs.^[5,6] The anti-spasmodic effect of ginger is due to the blockage of cyclooxygenases and 5-lipoxygenases.^[7] A study has

reported the effect of ginger in the reduction of severity and duration of menstrual pain.^[8] Ginger is the alternative medicine to be used for this purpose and found as effective as mefenamic acid in the relief of pain in women with primary dysmenorrhea with less side effects.^[9,10] The purpose of the study was to compare the effectiveness of mefenamic acid and ginger capsules in pain reduction in primary dysmenorrhea among nursing students and to observe the prevalence of adverse reactions.

MATERIAL AND METHOD

A prospective cross-sectional study was conducted in nursing students of Nepalgunj Nursing Campus in between September 2019 to November 2019 after getting permission from ethical committee of Nepalgunj Medical College. Informed consent was taken from all nursing students who enrolled in the study. Data were collected

in two parts. In the first part, students were asked about their socio-demographic profile and menstrual characteristics (menarche age, menstrual regularity, menstrual cycle duration, family history of dysmenorrhea, frequency of dysmenorrhea, and severity of pain experienced). The second part of the data collection included the intake of mefenamic acid 500 mg twice daily for three days in individuals who were suffering from dysmenorrhea. The same individuals who suffered in the first month was asked to take ginger capsules 500mg twice daily for 3 consecutive days in the second month of their period. The severity of pain was assessed using verbal multi-dimensional scoring system (VMSS) before and after mefenamic acid and ginger intake. VMSS was categorized into four grades such as Grade 0 (No pain, and daily activity not affected), Grade 1 (Mild pain, and rarely used analgesics or rarely

affected daily activities), Grade 2 (Moderate painful menstruation and only analgesics give enough relief to do daily activities), and Grade 3 (Severe painful menstruation with a significant limit on daily activities, analgesics have a poor effect, and other systemic functions were affected).^[11,12] All data was directly entered into SPSS 20.0 and analyzed.

RESULTS

Out of 120 students, 78 (65%) students who had dysmenorrhea were enrolled in the study. The Mean age \pm standard deviation in years was 18.42 ± 1.07 ; range was from 17 to 22 years. The menarche age was (mean \pm SD, year) 13.86 ± 1.29 . No statistically significant difference (p -value > 0.05) was found between the experience of dysmenorrhea and age range. (Table-1)

Table 1: Age-wise Experience of dysmenorrhea.

Age	Dysmenorrhea		p-value
	Yes	No	
17-19	55	30	> 0.05
19-22	23	19	

The majority of participants 96 (80%) had a menstrual cycle of 22-30 days with regular menstrual in 93 (78%). The 4-5 days of menstrual bleeding period was on 74

(61%), 78 (65%) reported dysmenorrhea and 65 (54%) reported a family history of dysmenorrhea. (Table 2)

Table 2: Menstrual characteristics.

Menstrual cycle duration	Frequency (percentage)
21 days or less	20 (17%)
22-30days	96 (80%)
30 or more days	4 (3%)
Menstruation bleeding duration	
2-3 days	38 (32%)
4-5 days	74 (61%)
6-7 days	8 (7%)
Menstruation cycle regularity	
Regular	93 (78%)
Irregular	27 (22%)
Experience of dysmenorrhea	
Yes	78 (65%)
No	42 (35%)
Family history of dysmenorrhea	
Yes	65 (54%)
No	55 (46%)

In 78 students with primary dysmenorrhea, 30 (38%) students had severe pain in the first month of mefenamic acid group and 28(36%) students had severe pain in the

second month of the ginger group but majority of students had moderate pain 38 (49%) and 36(46%) in mefenamic and ginger group respectively. (Table 3)

Table 3: Severity of pain in Mefenamic acid and Ginger group.

	Mefenamic group	Ginger group
Mild (Grade1)	10 (13%)	14(18%)
Moderate (Grade 2)	38 (49%)	36(46%)
Severe (Grade 3)	30 (38%)	28(36%)

In this study mefenamic acid relieved 55 (70%) students completely with no pain, 21 (27%) had mild pain and 2 (3%) still had moderate pain. Similarly, in study with

ginger group in the second month, ginger relieved 56 (72%) students with no pain, 11 (14%) had mild pain and 3 (4%) still had moderate pain. (Table-4)

Table 4: Pain reduction (relief) after Mefenamic acid and Ginger intake.

	No pain	Mild pain	Moderate pain
Mefenamic group	55(70%)	21 (27%)	2 (3%)
Ginger group	56 (72%)	11 (14%)	3 (4%)

Out of 78 students, 23(29%) students suffered from the adverse effects of mefenamic acid. In 18 (23%) students had mild nausea in which 3 (4%) even vomited once and 2 (2.5%) of them had mild epigastric pain whereas in

with the ginger group only 7(9%) individuals was nauseated. With the p-value<0.05, a highly statistical difference was observed in the favor of ginger group having minimal adverse effects. (Table 5)

Table 5: Adverse effects observed in mefenal/ ginger intake.

	Mefenamic group	Ginger group
Nausea	18 (23%)	7(9%)
Vomiting	3 (4%)	0
Epigastric pain	2 (2%)	0
	23(29%)	7(9%)

DISCUSSION

Among the 120 students, the prevalence of dysmenorrhea was 78 (65%) which agreed with the prevalence rate reported by a study by Ankita et al.^[12] 83.7%, Gebeyehu MB et al^[13] 77.6%, AA Farotimi et al^[14] 78.1% and Grandi G et al^[15] was 84.1%, respectively. Majority of students in the present study expressed their severity of primary dysmenorrhea was moderate 49% which was comparable to 47.6% - 65.2% reported in Indian health care students.^[16,17] However, the severity was higher than in health care students in Pakistan (46%)^[18] and Ethiopia (41.6%).^[19] In this study, 38% in mefenamic group and 36% in the ginger group described their pain as severe which is similar to the study by Unsal A et al^[20] and Ankita et al^[12] where and majority of students had moderate pain 49% and 46% in mefenamic and ginger group respectively which is similar with the a study by Burnett et al^[21] in Canada which indicates that dysmenorrhea is still an important public health problem and most of the females experience severe or moderate dysmenorrhea. NSAIDs are the mainstay treatment for managing the menstrual pain; mefenamic acid, being the widely used and preferred drug in primary dysmenorrhea.^[22] Our findings suggest that no significant difference in pain relief was found between ginger and mefenamic acid in terms of efficacy. However, significantly fewer side effects were observed in ginger. This finding is similar to the study done by Ankita et al,^[12] and Shirvani MA et al^[23] concludes that ginger is as effective as mefenamic acid on pain relief in primary dysmenorrhea. Rahnama et al^[24] also suggest that ginger had a statistically significant effect on relieving the intensity of menstrual pain. Similarly, Ozgoli et al^[25] also supports our findings of the superiority of ginger, being comparable to the established drug like mefenamic acid in relieving menstrual pain in women which is strongly supported by a Egyptian study, fresh ginger was effective in relieving menstrual pain.^[26] Mefenamic acid is widely used over

the counter drug among the nursing and medical students. Ginger, on the other hand, has been proved to reduce the menstrual pain significantly and be as effective as other NSAIDs group of drugs.

CONCLUSION

Significance proportion of nursing students had primary dysmenorrhea. Ginger is as effective as mefenamic acid in relieving pain in primary dysmenorrhea with minimal adverse effects. It is very important to educate students for appropriate and effective management of dysmenorrhea with an alternative treatment like ginger.

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