PREVALENCE AND SEVERITY OF DYSMENORRHOEA IN GAYA ADOLESCENT

Sandhya Prasad¹, Supriya Krishna², Bijay Krishna Prasad³, Rohit Goel⁴

¹Medical Officer, JPN Hospital, Gaya.

²Medical Officer, Fortis Hospital, Faridabad, Haryana.

³Professor and HOD, Department of Physiology, ANMM College, Gaya.

⁴Medical Officer, Haryana State Services.

ABSTRACT

BACKGROUND

Dysmenorrhoea is the commonest complaint in the female adolescents and affects their regular activities. It is the leading cause of absenteeism from work place, school and college, limitation on social and sports activities among that population. In some places government provided 2 days special leave for women employees. But they rarely use it for this purpose. In Bihar also, Bihar state government provided 2 days special leave for women. In this study, 200 females were selected. All participants were given a questionnaire to complete in 20 minutes. They were advised not to write their name or sign and was assured that their response would remain confidential. Maximum participants do not seek medical aid and self-treat themselves with drugs or some other means as advised by their mothers or some close female relatives or friends on traditional faith with no knowledge of scientific basis of dysmenorrhoea. They do not know even anatomy and physiology of female genital organs. They do not know about the mechanism of menstruation.

MATERIALS AND METHODS

This is a prospective observational study. The study was conducted in Gaya, Bihar. 200 unmarried, nulliparous healthy females of 17 to 25 years were selected for this study on random basis. Sample size was done at convenience. They were informed that this is a study to know the prevalence of dysmenorrhoea in our area and know mode of treatment adopted by them and try to improve treatment.

RESULTS

In our study 200 women between age group of 17 - 25 yrs. participated from my clinic after getting their consent. They were not suffering from hypertension, diabetes mellitus, renal or hepatic disorders. Detailed history was taken. Height and weight were recorded.

CONCLUSION

Dysmenorrhoea is a common gynaecological problem among adolescents in Gaya also, although in our study participants are less in number, so further study with large number of participants is needed. Mild and moderate dysmenorrhoea do not cause absenteeism from school, college and work place.

KEYWORDS

Dysmenorrhoea, Prostaglandin, Endometrium, Menstruation, Ovulation, Adolescent.

HOW TO CITE THIS ARTICLE: Prasad S, Krishna S, Prasad BK, et al. Prevalence and severity of dysmenorrhoea in gaya adolescent. J. Evolution Med. Dent. Sci. 2018;7(04):524-528, DOI: 10.14260/jemds/2018/117

BACKGROUND

Dysmenorrhoea is a medical condition of pain during menstruation that interferes with daily activities as defined by ACOG⁽¹⁾ and others.⁽²⁾ It is also known as menstrual cramps or painful periods. Menstrual cramps or painful cramps is pain in the lower abdomen, back or upper thigh and if this is severe it is known as dysmenorrhoea. Pain is the main complaint in lower abdomen which may radiate to thigh etc. and may be associated with other complaints like nausea, vomiting and diarrhoea. It usually starts with menstruation and typically lasts for two or three days. It is estimated to occur in 20% - 90% of women of reproductive age group.⁽¹⁾

'Financial or Other Competing Interest': None.

Submission 08-11-2017, Peer Review 06-01-2018,

Acceptance 12-01-2018, Published 22-01-2018.

Corresponding Author:

Dr. Bijay Krishna Prasad,

Sri Krishna Nursing Home and

Maternity Centre, Roy Sheetal PD Road,

Near GBM College, Gaya-823001.

E-mail: bijaykrishnaprasad@gmail.com

DOI: 10.14260/jemds/2018/117

In many countries, mainly in Asia, they have introduced formal menstrual leave to provide women with either paid or unpaid leave from their employment. In our state, it is known as special leave for women and it is paid. This practice is controversial due to the fact that while menstruating women work efficiently and many women do not use this leave. It is more common among those with excessive bleeding, irregular bleeding and low body weight, and whose menstruation started before 12 years of age. It is less common in those who exercise regularly and those who have children early in life. Typically, it starts within a year of the 1st menstrual period⁽¹⁾ and improves with age or following child birth if no underlying cause is present.⁽²⁾

Causes- It is classified into

1. Primary- Dysmenorrhoea is primary when no cause is detected.⁽³⁾
2. Secondary- Dysmenorrhoea is secondary when cause is detected, which may be present within or outside the uterus. The most common cause of secondary dysmenorrhoea are-

1. Endometriosis, 70% of adolescents.
2. Leiomyoma.
3. Adenomyosis.

The exact cause of primary dysmenorrhoea is not clear. Dysmenorrhoea is associated with a normal ovulatory cycle. During menstrual cycle, the endometrium proliferates and becomes thick under the influence of oestrogen in preparation of implantation of fertilised ovum for potential pregnancy. After ovulation there is accumulation of fatty acids in the phospholipids of the cell membranes. The high intake of omega-6 fatty acids cause dominance of the omega-6 fatty acids in the cell wall phospholipids. When there is no fertilisation of ovum and pregnancy, Progesterone withdrawal before menstruation, these omega-6 fatty acids especially arachidonic acid are released and a cascade of prostaglandins and leukotrienes are initiated in the uterus. The inflammatory response mediated by prostaglandins and leukotrienes produce cramps and systemic symptoms, especially the prostaglandin F2 α and cyclooxygenase (COX). Metabolite of arachidonic acid cause potent vasoconstriction and myometrial contraction. Release of prostaglandins and other inflammatory mediators in the uterus cause the uterus to contract and this is mainly responsible for Primary dysmenorrhoea causing pain and ischaemia. When uterus contracts, blood vessels of endometrium constricts reducing the blood supply of endometrium.

This ischaemia leads to necrosis of endometrial lining and finally shedding of endometrium. The necrosed tissue along with blood and other debris is expelled from the uterus due to myometrial contraction. The uterine contractions squeeze the old necrosed endometrial tissue through cervix and vagina. These contractions and the resulting ischaemia of nearby tissues are responsible for the pain or cramps felt during menstruation. In women suffering from primary dysmenorrhoea, there are high level of prostaglandin in menstrual fluid. PGF2 α activity in menstrual fluid collected from tampons was twice as high in the dysmenorrhoeic as in the eumenorrhoeic women. This increased level of PGF2 α and other leukotrienes cause increased contractility and more contractions of uterus and other structures as compared with eumenorrhoeic normal women. Many studies report that dysmenorrhoea affects academic, social and other activities of adolescents.⁽⁴⁾

Diagnosis of dysmenorrhoea is simple and is clinical and detail history will indicate the diagnosis. Pain is a subjective feeling and depend on the individual. There is no universal accepted gold standard technique for quantifying the severity of menstrual pains. Yet there are some quantifying methods called 'menstrual symptometrics' that can be used to know the severity of menstrual pains as well as correlate them with pain in other body parts, menstrual bleeding and degree of interference with daily activities. Once dysmenorrhoea is diagnosed, further investigations are required to find out any secondary underlying cause of dysmenorrhoea in order to treat the cause specifically and to avoid the aggravation of underlying cause. Further workup includes a specific medical history of symptoms and menstrual cycles and pelvic exam if indicated. Based on these findings, additional examinations and tests may be done. For example: - 1. Laboratory tests- Complete blood count (CBC), etc., 2. Gynaecologic ultrasonography, 3. Computerised tomography scan of lower

abdomen, 4. Laparoscopy and even laparotomy may be needed to establish the diagnosis.

Aims and Objective

The aim of this study is to know prevalence and severity of dysmenorrhoea in adolescents of our area that is Gaya, Bihar, and to know its effect on them. We will try to explain the cause of dysmenorrhoea in simple words and importance of hygiene of private parts. We will also try to know mode of treatment adopted by them and try to improve their opinion and management of dysmenorrhoea.

MATERIALS AND METHODS

This is a prospective observational study. Study was conducted in Gaya, Bihar. Gaya is a city of ancient historical and mythological significance. In 2006, the 'Ministry of Panchayati Raj' named Gaya one of the countries. 250 were the most backward districts out of total 640 districts at that time. 200 unmarried, nulliparous healthy females of 17 to 25 years were selected from patients coming in the Nursing Home from March 2017 to July 2017 after getting their consent for this study on random basis. Sample size was done at convenience. In this timeframe girls below 17 years did not report any gynaecological problems and also above 25 years unmarried or nulliparous healthy females did not come for some gynaecological problems.

Inclusion Criteria

- Age between 17 to 25 yrs.
- Unmarried or nulliparous.
- Non-smoker, non-alcoholic.
- Not taking any medicine.
- Not suffering from any chronic disease.

Exclusion Criteria

- Suffering from Hypertension.
- Suffering from Diabetes mellitus
- Suffering from Chronic renal disease.
- Suffering from any Neurological disorder.
- Suffering from Physical disability.

They were informed that this is a study to know prevalence of dysmenorrhoea in our area and know mode of treatment adopted by them. Written consent was obtained from them. We tried to improve their knowledge about menstruation and how to adopt hygiene of private parts, especially during menstruation. We discussed how to improve the management and reduce their absenteeism from work or other engagements. Detailed history was taken. Height was recorded. Subjects were asked to remove their shoes and stand with their back to the wall and look straight. The back of their feet, calves, upper back and the back of their head should be in contact with the wall. The measurement is recorded in nearest centimetre. Weight is taken in the following manner: - Weighing machine is placed at a plain surface and scale is placed at zero before the subject steps onto the weighing machine. The subject was asked to look straight ahead and stay still on the scale and wait for the needle to settle the pointer before recording the measurements. Measurement was recorded nearest to 0.5 kg. (BMI) Body Mass Index is calculated. It is defined as the subject's weight divided by the square of their height. BMI is a

simple calculation using a person's height and weight. It is calculated using Quetelet equation. It is universally expressed in kg/m² (Weight in kilogram and height in metre).

Obesity was determined according to WHO norms-

- Underweight- BMI less than 18.5.
- Normal weight- BMI 18.5 to 25.
- Overweight- BMI 25 to 30.
- Class 1 obesity- 30 to 35.
- Class 2 obesity- 35 to 40
- Class 3 obesity- 40 and above.
- Super obesity- Above 45.

In this study above, BMI above 30 is taken as obesity. In our study, there was no obese subject. Habit of exercise was also asked. Anaerobic exercise is an activity that causes the subject to become rapidly breathless. For example, lifting a heavy weight, while aerobic exercises include brisk walking, running, etc. Aerobic exercise is also known as cardio. In our study, only 26% were doing regular exercise for 30 minutes of aerobic type. Each candidate was given a set of questions in a separate sheet of paper to complete within 30 minutes. They were instructed not to mention their name or sign in it, so their identity is kept a secret.

Questions were-

1. Details of education- non-matric, graduate and postgraduate or professional.
2. Dietary habits- Vegetarian or non-vegetarian.
3. Habits- Smoker, non-smoker, tobacco chewing or betel chewing, etc. In this age group it is uncommon and drug addiction is not reported in our area.
4. Socioeconomic class.
5. Family history of any chronic disease, especially dysmenorrhoea.
6. Physical work and its nature.
7. Age of menarche.
8. Duration of menstrual cycle.
9. Duration of bleeding period.
10. History of dysmenorrhoea.
11. Severity of dysmenorrhoea.
 - a. Mild, no interference with daily duties except routine work 42%.
 - b. Moderate, interference with daily routine to some extent and take medicine 25%.
 - c. Severe, prefer to stay at home, in rest 6%.
12. Duration of dysmenorrhoea.
 - a. One day before menstrual bleeding starts till cessation of bleeding 69%.
 - b. Two days before menstrual bleeding starts till cessation of bleeding 25%.
 - c. On the day from menstrual bleeding starts till cessation of bleeding 06%.
13. Absenteeism from work for days.

The data was analysed using SPSS Version 11.0 and chi-square test was used.

RESULTS

In our study, 200 women between age group of 17 - 25 yrs., participated from my clinic after getting their consent. They were not suffering from hypertension, diabetes mellitus,

renal or hepatic disorders. Detail history was taken. Height and weight were recorded-

1. The mean age was 21.6 yrs.
2. The mean age of menarche was 12.33 yrs. with extreme age- 09 to 15 yrs.
3. 66% were non-vegetarian and 34% were vegetarian.
4. 64 subjects i.e. 32% were doing regular exercise for 30 minutes, rest 136 subjects i.e. 68% were not doing exercise but engaged in household and other physical work and have no time to do regular exercise. There was no significant difference in the prevalence and severity in both groups. Severe- prefer to stay at home after taking some drugs. 12 subjects, i.e. 6% in this group with excessive bleeding was present and fear of staining of clothes with blood was also a factor to go outside for long periods as no lavatories are present at work places and schools or colleges with facilities to change pads. Better sanitary pads and provision of ladies' wash room will certainly improve their absenteeism from work places and schools or colleges. BMI: 21 subjects i.e. 10.5% were underweight, 170 subjects i.e. 85% were normal weight and 9 subjects i.e. 4.5% were overweight. No obese subjects.

Figure 1. Exercise Habits

26% regular exercise for 30 minutes; 74% no regular exercise

Figure 2. Diet Habits

Diet Habits

Non-vegetarians were 132 subjects i.e. 66% and Vegetarians were 68 subjects i.e. 34%.

Socio-Economic Class

High class- 24 subjects i.e. 12% were of High socio-economic class; Middle class- 128 subjects i.e. 64% were of Middle

socio-economic class; and Lower class- 58 subjects i.e. 24% were of Lower socio-economic class.

Figure 3. Socio-Economical Class

Socio-Economical Class:- High- 12%, Middle Class- 64%, Lower 24%.

Figure 4. Educational Qualification

Educational qualification:- 50 subjects i.e. 25% were non-matric, 82 subjects i.e. 41% were graduates and 68 subjects i.e. 34% were postgraduates and professional.

Graph 1. Age of Menarche

Graph 2. Patterns of Dysmenorrhoea

Treatment patterns of dysmenorrhoea adopted by the subjects: - In our study, majority of adolescents use non-pharmacological methods such as topical heat application, herbal preparations, yoga and exercise with varying results. Some are used to take rest, while many are used to engage themselves in some work for distraction. Some are used to take low-calorie diet. Many girls either do not seek medical advice or are undertreated. They follow advice of their female family members or friends. In this study, it was found that they often use over-the-counter pain medication. Those who self-medicated with over-the-counter preparations used sub-therapeutic dose and sub-standard drugs. By experience they knew that which medicine could relieve dysmenorrhoea. But they do not know the side effects of the preparations. They were advised to have medical advice and follow the advice do not ignore dysmenorrhoea.

DISCUSSION

In our study, we found the mean age of menarche in this area is 12.33 years. Many other studies reported the same age group.^(5,6) Prevalence of dysmenorrhoea is 51% - 80% according to many studies.^(7,8) In this study also we found that dysmenorrhoea is present in 74% cases- this is the most common gynaecological problem of adolescents. In this study 42% were suffering from mild dysmenorrhoea, 52% from moderate and 6% from severe dysmenorrhoea. Singh et al⁽⁹⁾ showed that 63.29% suffered from mild dysmenorrhoea, 30.37% from moderate and 6.32% from severe grade of dysmenorrhoea. However, according to Jerry et al⁽¹⁰⁾ they suffered from moderate and 6.32% from severe grade of dysmenorrhoea. However, according to Jerry et al⁽¹⁰⁾ they suffered from mild dysmenorrhoea, 38% with moderate and 14% with severe dysmenorrhoea in our study. BMI was not associated with dysmenorrhoea in significant manner. Parazzini et al⁽¹¹⁾ also did not find any association with obesity. However, reports on association between overweight and dysmenorrhoea are contradictory.^(12,13,14) In present study, we could not find any relation between dysmenorrhoea and exercise habits and diet habits. Another study also supports our finding that physical activities are not associated with dysmenorrhoea. But Harlow et al⁽¹²⁾ have contradictory reports.

CONCLUSION

Dysmenorrhoea is a common gynaecological problem among adolescents in Gaya also, although in our study participants

are less in number so further study with large number of participants is needed. Mild and moderate dysmenorrhoea do not cause absenteeism from school, college and work place. In this study only 6% were absent from school, college or work place during menstruation. But several studies had reported 34% to 50% absenteeism from school, college or work place during menstruation.^(15,16) Demir SC et al⁽⁶⁾ had reported only 14% were absent from school/ college or work place during menstruation due to dysmenorrhoea. This change may be due to awareness among adolescents about dysmenorrhoea. Better sanitary pads and provision of washroom for women in schools/ colleges and work places has reduced percentage of absenteeism.

ACKNOWLEDGEMENT

We are grateful to the staff of Sri Krishna Nursing Home and Maternity Centre, Gaya, for their assistance in this work.

REFERENCES

- [1] Osayande AS, Mechulic S. Diagnosis and initial management of dysmenorrhea. *American Family Physician* 2014;89(5):341-6.
- [2] FAQ046 Dysmenorrhea: Painful Periods. American College of Obstetrician and Gynecologist 2015.
- [3] Menstruation and menstrual cycle fact sheet. Office of women's health, 2014.
- [4] Wilson CA, Keye WR. A survey of adolescent dysmenorrhea and premenstrual symptom frequency. A model program for prevention, detection and treatment. *J Adolesc Health Care* 1989;10(4):317-22.
- [5] Cakir M, Mungan I, Kankar T, et al. Menstrual pattern and common menstrual disorders among university students in Turkey. *Pediatr Int* 2007;49(6):938-42.
- [6] Demir SC, Kadayyfcy TO, Vardar MA, et al. Dysfunctional uterine bleeding and other menstrual problems of secondary school students in Adana, Turkey. *J Ped Adolesc Gynecol* 2000;13(4):171-5.
- [7] Pullon S, Reinken J, Sparrow M. Prevalence of dysmenorrhoea in Wellington women. *N Z Med J* 1988;101(839):52-4.
- [8] Ng TP, Tan NC, Wansaicheong GK. A prevalence study of dysmenorrhoea in female residents aged 15-54 yrs in Clementi Town, Singapore. *Ann Acad Med Singapore* 1992;21(3):323-7.
- [9] Singh A, Kiran D, Singh H, et al. Prevalence and severity of dysmenorrhea: a problem related to menstruation, among first and second year female medical students. *Ind J Physiol Pharmacol* 2008;52(4):389-97.
- [10] Klein JR, Litt IF. Epidemiology of adolescent dysmenorrhea. *Pediatrics* 1981;68(5):661-4.
- [11] Parazzini F, Tozzi L, Mezzopane R, et al. Cigarette smoking, alcohol consumption and risk of primary amenorrhoea. *Epidemiology* 1994;5(4):469-72.
- [12] Harlow SD, Park M. A longitudinal study of risk factors for the occurrence, duration and severity of menstrual cramps in a cohort of college women. *Br J Obstet Gynaecol* 1996;103(11):1134-42.
- [13] Andersch B, Milsom I. An epidemiologic study of young women with dysmenorrhea. *Am J Obstet Gynecol* 1982;144(6):655-60.
- [14] French L. Dysmenorrhea. *Am Fam Physician* 2005;71(2):285-91.
- [15] Sundell G, Milsom I, Andersch B. Factors influencing the prevalence and severity of dysmenorrhea in young women. *Br J Obstet Gynaecol* 1990;97(7):558-94.
- [16] Banikarim C, Chacko MR, Kelder SH. Prevalence and impact of dysmenorrhoea on Hispanic female adolescents. *Arch Pediatr Adolesc Med* 2000;154(12):1226-9.