Coll. Antropol. **27** (2003) 2: 707–711
UDC 618.175-053.6:616-056
Original scientific paper

Anthropological and Clinical Characteristics in Adolescent Women with Dysmenorrhea

Tomislav Strinić[1], Damir Buković[2], Ljubomir Pavelić[3], Josip Fajdić[4] Ivan Herman[5], Ivica Stipić[6], Ivan Palada[6] and Ivana Hirš[2]

[1] Department of Obstetrics and Gynecology, University Hospital »Split«, Split, Croatia
[2] Department of Obstetrics and Gynecology, University Hospital Center »Zagreb«, Zagreb, Croatia
[3] University Hospital for Lung Diseases »Jordanovac«, Zagreb, Croatia
[4] Department of Surgery, General Hospital »Požega«, Požega, Croatia
[5] General Hospital »Varaždin«, Varaždin, Croatia
[6] School of Medicine, University of Split, Split, Croatia

A B S T R A C T

The aim of this study was to examine the prevalence of dysmenorrhea in female adolescents and the influence of anthropological characteristics and lifestyle factors on menstrual pain. Two hundred and ninety seven girls from several elementary and secondary schools were interviewed about the presence of the menstrual pain, their age, height and weight, menarcheal age, menstrual cycles quality, smoking and sexual activity. There were 164 (55%) subjects with and one hundred and thirty three (45%) without dysmenorrhea. The adolescents with dysmenorrhea answered the questions about missing activities and taking pills for pain. No difference was observed between the girls with and the girls without dysmenorrhea in their chronological age, height, weight, menarcheal age, menstrual cycles quality, cigarette smoking and sexual activity. In the group of dysmenorrheic adolescents there was infrequent missing activities and bedrest, but missing school was observed in 22 percent and taking pills for pain was observed in 96 percent of the subjects. Young girls who experienced menstrual pain are good candidates for a prophylactic therapy, such as hormonal contraception. A replication of this study is needed for public health services in the future to improve the quality of life of the dysmenorrheic young women.

***Key words**: dysmenorrhea, adolescents, contraception*

Received for publication October 21, 2003

Introduction

Primary dysmenorrhea refers to a complex of symptoms comprising menstrual pain or uterine cramping and other systemic complaints, including headache, back pain, vomiting, nausea and dizziness[1–3]. These symptoms can be explained by the elevation of circulatory prostaglandins and their metabolites. There is a threefold increase in prostaglandin levels in the endometrium from the follicular phase to the luteal phase, with a further increase during menstruation. Women with primary dysmenorrhea have a greater endometrial production of prostaglandins compared with asymptomatic women. Most of the release of prostaglandins during menstruation occurs during the first 48 hours, which coincides with the greatest intensity of the symptoms[1–6]. Primary dysmenorrhea is an important clinical and social problem affecting more than 50% of menstruating women. Most adolescents experience dysmenorrhea in the first few years after the menarche[4,5,7]. Many treatments have been utilized in the management of premenstrual symptoms, including hormonal therapies and hormonal contraception. Oral contraception is a good choice for therapy, combining contraception with a beneficial impact on dysmenorrhea, menstrual flow and menstrual irregularity. The explanation for the benefit observed when taking oral contraceptives is decreased prostaglandin synthesis associated with the atrophic decidualized endometrium[8–12]. In women who do not desire hormonal contraception, the best therapy is one of the agents that inhibit prostaglandin synthesis. There are several families of nonsteroidal anti-inflammatory agents[2,3,6,13]. Dysmenorrhea improves in most women after a full-term pregnancy[1,2,4].

This paper reports the results of an analysis of the prevalence of dysmenorrhea in an adolescent cohort and the characteristics of this dysmenorrheic population.

Subjects and Methods

A questionnaire was used to identify the girls suffering from primary dysmenorrhea among schoolgirls from several elementary and secondary schools. The questionnaire was completed by 297 (92%) of the 323 girls invited to participate in this investigation. The interview included questions about age, height and weight, age at menarche, menstrual cycle characteristics, smoking, sexual activity, and included ones about the severity and frequency of dysmenorrhea and missing activities. Each girl was categorized by her reported details in the group with or without dysmenorrhea. The criteria for selecting dysmenorrheic subjects to participate in the study was based solely on self-report criteria: the girls' complaint of menstrual pain. The exclusion criteria were: attempt to conceive, use of hormonal contraception, asthma, breastfeeding, severe blood, liver or kidney disease, peptic ulcer or severe dyspepsia. There were 164 (55%) girls with and one hundred and thirty three (45%) without dysmenorrhea. Mean values were expressed as arithmetic mean (X) and scatter as standard deviation (SD). For comparisons of metric or categorical variables between the two groups Student's t-test or χ^2-test was used. Statistical significance was considered at levels of 5% ($p<0.05$).

Results

This study was based on data from one hundred and sixty four girls with and 133 adolescents without dysmenorrhea.

No difference between the two groups was observed in their chronological age, except among 15-year-old girls. Statistically significant more 15-year-old adolescents were included in the group with

dysmenorrhea (17%) versus group without dysmenorrhea (12%) ($p<0.05$) (Table 1).

Table 2 shows anthropological and clinical characteristics of examinees. No difference between the two groups was observed in their mean height (169.1 versus 168.2 cm; p = ns), mean reported average weight (59.8 versus 59.4 kg; p = ns), mean reported average age at menarche (12.3 versus 12.2 years; p = ns), mean reported average duration of menses (5.3 versus 5.4 days; p = ns), mean reported average length of cycle (27.1 versus 27.7 days; p = ns), or the percentage reporting smokers (21% versus 20%; p = ns) and sexual activity (57% versus 54%; p = ns).

Table 3 presents the frequency of indicators of menstrual disability by event and by girl. Missing any activity was an infrequent occurrence (9% of the girls with dysmenorrhea). Thirty six percent of the participants were reported missing

TABLE 1
CHRONOLOGICAL AGE OF EXAMINEES (N = 297)

Age (years)	With dysmenorrhea (N=164)		Without dysmenorrhea (N=133)		p*
	N	%	N	%	
11	4	2	5	4	ns
12	15	9	1	8	ns
13	18	11	12	9	ns
14	14	9	14	10	ns
15	28	17	16	12	<0.05
16	32	19	29	22	ns
17	24	15	23	17	ns
18	29	18	24	18	ns
Total	164	100	133	100	

* = χ^2-test

TABLE 2
ANTHROPOLOGICAL AND CLINICAL CHARACTERISTICS

	With dysmenorrhea (N=164)		Without dysmenorrhea (N=133)		p
	X	SD	X	SD	
Height (cm)	169.1	5.9	168.2	5.9	ns**
Weight (kg)	59.8	6.6	59.4	7.2	ns**
Age at menarche (years)	12.3	2.2	12.2	2.1	ns**
Duration of menses (days)	5.3	1.3	5.4	1.2	ns**
Lenght of cycle (days)	27.1	4.5	27.7	4.6	ns**
Smokers (%)					
Yes	21		20		ns*
No	79		80		
Sexual activity (%)					
Yes	57		54		ns*
No	43		46		

* = χ^2-test, ** = t-test

TABLE 3
MISSED ACTIVITIES AND TAKING A PAIN MEDICATION (N=164)

	N	%
Missed any activity	14	9
Missed school	36	22
Stayed in bed	7	4
Pain before menstruation	26	16
Took a pill for pain	157	96

school, but bedrest only occurred in 4% of the participants. Taking medication for pain was more common as 96% of the girls with dysmenorrhea indicated that they had taken a pill for pain. Only 16% of the young women in this study experienced the onset of pain before menstruation.

Discussion

Dysmenorrhea is a common complaint and most women experience occasional episodes of severe pain. In this study 55% adolescents reported dysmenorrhea, which is similar to the prevalence published in previous studies[1,2,4,14,15]. In the recent literature we did not find data indicating that the chronological age was associated with dysmenorrhea. Also, in our study no difference was observed between the two groups in their chronological age. No previous studies have identified weight as a potential risk factor for dysmenorrhea[1,2,4,14] and our findings are also identical. It is well-known that dysmenorrhea is more likely to occur during ovulatory cycles and that, during the menarcheal transition, the probability of ovulation increases with age. Several studies have also found an increased risk associated with early age at menarche[1,2,11], but in this study there was no difference in age at menarche between the two groups. Some authors found that women who have cycles longer than 35 days are more likely to experience menstrual pain[1,2,15]. This study did not find a difference between the girls with and the girls without dysmenorrhea in length of cycle and duration of menses. Furthermore, some authors reported that the prevalence of dysmenorrhea is elevated in smokers[1,2,14,15], but we found a similar prevalence in smokers and nonsmokers between both groups. The sexual active adolescents are similarly represented in both groups. The data from some of the authors are identical[7,8], but from others are different[11,14]. Although Pullon et al.[14] found that more than half of adult women report menstrual cramps starting before menstruation, only 16% of the adolescents in our study experienced the onset of pain before menstruation. The frequency of indicators of menstrual disability in this study, like missing any activity, missing school, bedrest and taking pills for pain, are similar in researches of others[1,2,4,14].

In summary, some of the findings from previous studies were confirmed in our study. However, this study does have some limitations which need to be noted. The major limitation is that the subjects were recruited from several schools; they may not be representative of all adolescents with dysmenorrhea or of all sexually active adolescents.

Young girls who experience menstrual pain are good candidates for a prophylactic therapy, such as hormonal contraception. It is important to presensitize an adolescent suffering from dysmenorrhea to the potential positive side-effects of oral contraceptives. The beneficial impact of oral contraceptives is well established. It is also important to continue the follow-up on girls with dysmenorrhea to determine if they are experiencing an alleviation of their symptoms. A replication of this study is needed to confirm some of the findings and to further explore the relationship between dysmenorrhea, contraceptive use and sexual health.

REFERENCES

1. SUNDELL, G., I. MILSOM, B. ANDERSCH, Brit. J. Obstet. Gynaecol., 97 (1990) 588. — 2. HARLOW, S. D., M. PARK, Brit. J. Obstet. Gynaecol., 103 (1996) 1134. — 3. ZIAEI, S., S. FAGHIHZADEH, F. SOHRABVAND, M. LAMYIAN, T. EMAMGHOLY, Brit. J. Obstet. Gynaecol., 108 (2001) 1181. — 4. SPEROFF, L., R. H. GLASS, N. G. KASE: Clinical gynecologic endocrinology and infertility. (Lippincott Williams & Wilkins, 1999). — 5. DAWOOD, M. Y., Clin. Obstet. Gynecol., 3 (1990) 168. — 6. STEINER, M., S. J. ROMANO, S. BABCOCK, J. DILLON, C. SHULER, C. BERGER, D. CARTER, R. REID, D. STEWART, S. STEINBERG, R. JUDGE, Brit. J. Obstet. Gynaecol., 108 (2001) 462. — 7. ROBINSON, J. C., S. PLICHTA, C. S. WEISMAN, C. A. NATHANSON, M. ENSMINGER, Am. J. Obstet. Gynecol., 166 (1992) 578. — 8. JOHNSON, J., J. Adolesc. Health. Care, 9 (1988) 398. — 9. STRINIĆ, T., D. ETEROVIĆ, Fertil. Steril., 79 (2003) 1070. — 10. EMANS, S. J., E. GRACE, E. R. WOODS, D. E. SMITH, K. KLEIN, J. MEROLA, JAMA, 257 (1990) 3377. — 11. MILSOM, I., G. SUNDELL, B. ANDRESCH, Contraception, 42 (1990) 497. — 12. STRINIĆ, T., D. BUKOVIĆ, D. KARELOVIĆ, A. DESPOT, N. BUKOVIĆ, E. GIUDICI, H. SILOVSKI, Coll. Antropol., 26 (2002) 245. — 13. OWEN, P. R., Am. J. Obstet. Gynecol., 148 (1984) 96. — 14. PULLON, S., J. REINKEN, M. SPARROW, N. Z. Med. J., 101 (1988) 52. — 15. PARAZZINI, F., L. TOZZI, R. MEZZOPANE, L. LUCHINI, M. MACHINI, L. FEDELE, Epidemiology, 5 (1994) 469.

T. Strinić

Department of Obstetrics and Gynecology, University Hospital »Split«, Spinčićeva 1, 21000 Split, Croatia

ANTROPOLOŠKE I KLINIČKE OSOBITOSTI ADOLESCENTICA S DISMENOREJOM

SAŽETAK

Cilj rada bio je ispitati učestalost bolnih menstruacija u adolescentica i utjecaj antropoloških čimbenika i načina života na bolne menstruacije. Dvije stotine devedeset sedam djevojaka iz nekoliko osmogodišnjih i srednjih škola intervjuirano je o prisutnosti bolova pri menstruaciji, životnoj dobi, visini i tjelesnoj masi, pojavi prve menstruacije, trajanju i kvaliteti menstruacijskog ciklusa, pušenju i seksualnoj aktivnosti. Bilo je 164 (55%) ispitanica s bolnim menstruacijama i 133 (45%) djevojke bez bolnih menstruacija. Djevojke s bolnim menstruacijama odgovarale su još na pitanja o gubitku dnevnih aktivnosti i uzimanju lijekova protiv bolova u vrijeme bolnih menstruacija. Nisu uočene razlike između skupina djevojaka sa i onih bez bolnih menstruacija glede njihove kronološke dobi, visine i tjelesne mase, dobi prve menstruacije, trajanja i kvalitete menstruacijskih ciklusa, pušenja i spolnih odnosa. U skupini djevojaka s bolnim menstruacijama nije uočeno često ostajanje u krevetu i gubitak dnevnih aktivnosti, ali je izostanak iz škole bio učestaliji (u 22% ispitanica) i izuzetno često uzimanje lijekova protiv bolova (96% djevojaka). Mlade djevojke koje su iskusile bolne menstruacije kandidati su za preventivnu terapiju, poput hormonske kontracepcije. Ponavljanje ovakvih studija u budućnosti potrebito je javno zdravstvenim ustanovama poradi poboljšanja kvalitete života mladim ženama s bolnim menstruacijama.