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Infection by the human papillomavirus in teenagers sexually active: clinic and subclinic manifestations

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This research studies the association of the cervical condyloma with the intraepithelial neoplasia, during sex activity, pregnancy, diagnose methods, cytology and colposcopy in teenagers. The objective of this research is to study the propaedeutics for the uterine coli condyloma diagnose in a group of teenagers. For this purpose, we have studied 131 teenagers sexually active with ages between 14 and 19 years and presenting histologically confirmed uterine coli condyloma. Association with intraepithelial neoplasia, sexual activity duration, method of diagnose, pregnancy analysis, cytology and colposcopy results and association with vulva and vagina injuries were evaluated. The high association rate with condyloma and intraepithelial neoplasia after a short time of sexual activity and the none presence of macroscopic warts in the genital organs in 80% of cases presenting cervical condyloma, demonstrate that: a more careful investigation with colposcopy, and biopsy of the inferior genitals of the women-teenagers sexually active is needed, when presenting modified cervical cytology.

UNITERMS: Condyloma. Teenager. Uterine coli.

INTRODUCTION

Genital infection by the human papillomavirus (HPV) is more frequent in teenagers from 15 years on, with a maximum prevalence till 25 years approximately. Very unusual in childhood and after 60 years age (1,7,14). Data obtained both in Europe and United States of America suggest that during the last 20 years the HPV infections increased considerably, as well

as other sexually transmitted diseases (7). Since 1982 a high increase in the infections diagnose has been experienced, based on the great number of cytologic, colposcope and histopathological examinations of the uterine coli injuries (1,7). According to Biro and Hillard (1990) the infection by HPV, even being frequent in teenagers, only 10% of the cases are symptomatic.

Cervical citologies in this group of women, show infection evidence by HPV of rates varying from 1% to 28%, according to different surveys. In colposcope assessment, 5% to 10% of the teenagers show some condyloma type (3,7,8,13,14).

Infection by HPV is very important today due to its association with the uterine coli carcinoma, showing a great prevalence in Latin America, appearing about 20 years after the first infection by HPV (4). Presently, the most of the gynecological examinations are caused by the cervical intraepithelial neoplasia (NIC) and condyloma (5).

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On the other side, teenagers sexually active are particularly vulnerable and it is probable that epithelial neoplastic alterations starts just around this age. A better knowledge of the sub-clinical manifestations and the HPV infective behavior may help to establish therapeutic and correct following of young patients presenting condyloma (3,8,9,10,12).

CASUISTIC AND METHODS

This study was performed with 131 teenagers sexually active with ages varying between 14 and 19 years, being attended at the Center of Attention to Woman's Health at UNICAMP, from September 1990 till March 1992.

Patients were sent to the ambulatory due to clinic genital condyloma or abnormal cervical cytologic smear. Thirty six patients (27%) were pregnant when examined for the first time. All patients agreed to participate of the study and, after answering a questionnaire, were submitted to a complete gynecological examination, including cervic-vagina cytology, colposcopy and biopsy of the suspicious colli vulva and vagina areas. All lamina for the histologic study were evaluated by the same pathologist. Morphological criteria for the condyloma diagnose were the following: koilocitatis, atypia of the superficial layers of epithelium, binucleous, acanthosis, dyskeratosis, parakeratosis and/or hyperceratosis and the increase of unusual mitosis in the basal layers. In the cases presenting structural disturbance of epithelium, nucleus atypias and unusual mitosis, besides the others mentioned, diagnosis of the cervical intraepithelial neoplasia association to the condyloma was done.

Table I
Distribution according age of the teenagers presenting condyloma uterine colli

Age (years)	Nº	(%)
14	2	(2)
15	9	(7)
16	22	(17)
17	32	(24)
18	34	(26)
19	32	(24)
TOTAL	131	(100)

RESULTS

Distribution of the patients considering age, showed that 75% of teenagers were 17 years-old or more (Table I). Twenty six of the patients went in due to evident clinical condyloma in the external genitals and 105 were asymptomatic, presenting only one altered oncotic cytology. Fifty six patients (40%) were infected by the HPV during their first year of sexual activity. Following were the results observed of association between NIC and condyloma in 41% of cases: NIC I, 24 (18%); NIC II, 23 (17%) and NIC III, 7 (5%).

Table II shows NIC incidence according to the age of the patients. It was observed that NIC appeared in only 27% of patients between 14 and 15 years, however, levels of 40% were reached by patients 16/17 and 18/19 years-old.

Table III shows relation between NIC and the period of sexually active life. Incidence was similar between groups, independently from the period of sexual activity. Cytological examination showed NIC or koilocitosis in 86% of the cases. On the other side, however, 14% of the patients included in this study presenting uterine colli condyloma, histologically diagnosed, presented no cytologic smear.

In the cervical colposcopy, 91% of the cases presented white epithelium presence, associated or not to leucoplasia, masochism or unusual vases. Colposcopy assessment of vagina and of vulva showed abnormality in more of the half of patients: 32 vulva injuries (24%); 11 vagina injuries (8%) and, in 38, injuries in both areas. Only 23 patients with vulva or vagina injuries were submitted to biopsy, 21 of them presenting condyloma only and 2 of them associated to epithelial neoplasia.

DISCUSSION

Nearly 40% of the patients included in this study were diagnosed as HPV infected during their first year of sexual activity. As already known, incubation period of HPV varies from 3 weeks to 8 months. Therefore, infection can show up few time after first sexual intercourse (7,14).

The fact of founding association between NIC and condyloma in 41% of the cases strongly suggests that those pathologic entities may be caused by the same agent. The results of NIC II and III in 23% of these women, confirms the hypothesis that HPV infection may cause neoplasia

Table II
Distribution of teenagers with colli condyloma according the association with NIC and age

Total Biopsy	14 - 15		16 - 17		18 - 19		Total	
	n ^o	(%)	n ^o	(%)	n ^o	(%)	n ^o	(%)
Only condyloma	8	(83)	31	(59)	38	(58)	77	(59)
Condyloma and NIC	3	(27)	23	(41)	28	(42)	54	(41)
TOTAL	11		54		66		131	

transformations of the epithelial cells in a short time period. This study also did not show any association between the NIC and the sexual activity period. This indicates that the most important factor for NIC is only the sexual activity and the HPV infection. Neither age of patient nor the sexual activity duration were important.

HPV infection diagnose is usually made in women through the customary cervic-vaginal cythologic smear (2,3,5). In this study, the most part of the teenagers went in for examination due to modified oncotic cythology and only 20% presented macroscopic condylomatose injuries in the external genitals. Cythologic examination, however, even enabling diagnose in most of the cases, the 14% rate of patients with uterine colli condyloma and negative oncotic cythology is quite high. This high false-negative index confirms that cytology solely is not sufficient to keep away the HPV infection and that colposcopic evaluation is essential in teenagers with clinical condyloma in external

genitals. On the other side, colposcopy only is not capable to determinate difference between absolute condyloma and injuries associated to NIC. Therefore, colposcopic biopsy of suspicious injuries must be done independently of the age of the woman (14).

More than half of the patients studied presented injuries concomitantly in vulva and vagina. As the vulva or vagina biopsy is a more aggressive procedure, only 23 patients were submitted to it. All biopsies were compatible with condyloma and two cases presented association with NIC.

It is well known, already, that HPV may cause cythologic modifications in different areas, according to the several subtypes. However, treatment and prognostic of intraepithelial neoplasia in teenagers is not well defined (7,14).

Occurrence of 27% in pregnant women of this group is slightly higher than the expected, considering a

Table III
Distribution of teenagers with uterine colli condyloma according to association with NIC and time of sexual activity considering completed year periods

Biopsy	= < 1		2 - 4		= > 5	
	n ^o	(%)	n ^o	(%)	n ^o	(%)
Only condyloma	32	(60)	39	(60)	6	(46)
Condyloma and NIC	21	(40)	26	(40)	7	(54)
TOTAL	53		65		13	

Table IV
Association between macroscopic genital warts and pregnancy in teenagers with uterine colli condyloma

Genital warts	Pregnant		Not pregnant	
	n ^o	(%)	n ^o	(%)
Present	12	(33)	14	(15)
Absent	24	(67)	81	(85)
TOTAL	36	95		

population of approximately 20% Brazilian women sexually active between 14 and 19 years (6). This can be explained by the higher prevalence of condyloma during pregnancy and, also, the higher percentage of women submitted to cervic-vaginal cytologic examination during prenatal period (7,11,14).

Since condyloma and NIC are presently considered as being diseases associated to cervical cancer, the early

diagnose is a very important subject, as there are many doubts regarding treatment and following during a long time period. Therefore, the main purpose of this work was call the attention for the need of a cervic pathological control program in teenagers with less than 20 years, in spite of this procedure not being compulsory in many of the cervical cancer control programs.

RESUMO

Objetivo: o objetivo desta pesquisa é estudar a propedêutica para diagnóstico do condiloma do colo uterino em um grupo de adolescentes. **Material e métodos:** para este propósito, 131 adolescentes sexualmente ativas com idade entre 14 e 19 anos, com condiloma histologicamente confirmado do colo uterino, foram estudadas. A associação com neoplasia intra-epitelial, a duração da atividade sexual, o método diagnóstico, o estado gestacional, os resultados da citologia e da colposcopia e a associação com lesões vulvares e vaginais foram avaliados. **Resultado e conclusão:** a alta associação entre condiloma e neoplasia intra-epitelial, após um curto período de atividade sexual e a ausência de verrugas macroscópicas nos órgãos genitais em 80% dos casos com condiloma cervical mostram a necessidade de uma investigação cuidadosa com colposcopia e biópsia do trato genital inferior em mulheres adolescentes sexualmente ativas, com citologia cervical alterada.

REFERENCES

1. BECKER, T.M.; STONE, K.M.; ALEXANDER, E.R.: Genital human papillomavirus infection: a growing concern. **Obst. Gynecol. Clin North Am.**, **14**: 389, 1987.
2. BEURET, T.; SADOUL, G.; FARI, A.; IONESCO, M.; DE BRUX, J.: Etude epidemiologique comparative entre 120 patientes atteintes de lesions condylomateuse et 120 patientes temoin: **J. Gynecol. Obstet. Biol. Reprod.**, **16**:555, 1987.
3. BIRO, F.M. & HILLARD, P.: Genital human papillomavirus infection in adolescents. **Adolesc. Med.**, **74**: 1235, 1990.
4. BORING, C.C.; SQUIRE, T.S.; TONG, T.: Cancer statistics, 1992. **CA-A Cancer J. Clinic.**, **42**:19, 1992.
5. HAKAMA, M.; CHAMBERLAIN, J.; DAY, N.E.; MILLER, A.B.; PROROK, P.C.: Evaluation of screening programmes for gynaecological. **Br. J. Cancer**, **52**:669, 1985.
6. HENRIQUES, M.H.; SILVA, N.V.; SINGH, S.; WULF, D.: **Adolescentes de hoje, pais do amanhã: Brasil**. The Alan Guttmacher Institute, 88p, 1989.
7. KOUTSKY, L.A.; GALLAWAY, D.A.; HOLMES, K.K.: Epidemiology of human papillomavirus infection. **Epidemiol. Rev.**, **10**:122, 1988.
8. MARTINEZ, J.; SMITH, R.; FARMER, M.; RESEAU, J.; ALGER, L.; DANIEL, R.; GUPTA, J.; SHAK, K.; NAGHASHFAR, Z.: High prevalence of genital tract papillomavirus infection in female adolescents. **Pediatrics**, **82** (4): 604, 1988.
9. MOSCICKI, A.B.; PALEFSKY, J.; GONZALES, J.; SCHOOLNIK, G.K.: Human papillomavirus infection in sexually active adolescent female: prevalence and risk factors. **Pediatr. res.**, **28**: 507, 1990.
10. MOSCICKI, A.B.; WINKLER, B.; IRWIN, C.E.; SCHACHTER, J.: Differences in biologic maturation, sexual behavior and sexually transmitted disease between adolescents with and without cervical intraepithelial neoplasia. **J. Pediatr.**, **115**: 487, 1989.
11. RANDO, R.F.; LINDHEIM, S.; HASTY, L.; SEDLACEK, T.V.; WOODLAND, M.; EDER, C.: Increased frequency of detection of human papillomavirus desoxyribonucleic acid in exfoliated cervical cells during pregnancy. **Am. J. Obstet. Gynecol.**, **161**:50, 1989.
12. RIBAS, J.M.M.: Errores en la atencion ginecologica de ninas y adolescentes. **Obst. Ginecol. Lat. Am.**, **47**:280, 1989.
13. ROSENFELD, W.D.; VERMUD, S.; WENTZ, S.J.; BURK, R.D.: High prevalence rate of human papillomavirus infection and association with abnormal Papanicolau smears in sexually active adolescents. **AJDC**, **143**:1443, 1989.
14. SEDLACEK, T.V. & PEIPERT, J.F.: Genital human papillomavirus infections. **Postgraduate Obstetrics and Gynecology**, **11** (4):1, 1991.