

Inflammatory disease of cervix uteri: indirect indicator of women's reproductive health

Doença inflamatória do colo do útero: indicador indireto da saúde reprodutiva da mulher

Cervicitis: indicador indirecto de la salud reproductiva de las mujeres

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ABSTRACT

Objective: to examine hospital admissions for inflammatory disease of the cervix uteri and the related factors. **Method:** this prospective, cross-sectional study based on a hospital morbidity survey was conducted in 2013 with a sample of 429 women admitted to hospitals in the city of Guarapuava. Data were analyzed by bivariate analysis and logistic regression. The project was approved by the institution's research ethics committee. **Results:** 45 (10.4%) of the women were hospitalized for inflammatory disease of the cervix uteri. Protective factors against the occurrence of such hospitalizations included belonging to the target public, having performed the examination at least once, attending the service regularly for a health check and returning a result within normal limits in the prior year. **Conclusion:** knowledge of the factors relating to the outcome provides input for adjusting women's care services in order to prevent hospitalizations.

Descriptors: Uterine cervical diseases; women's health; primary health care; hospitalization.

RESUMO

Objetivo: analisar as internações por doença inflamatória do colo do útero e os fatores que influenciam a sua ocorrência. **Método:** estudo seccional, prospectivo, baseado em um inquérito de morbidade hospitalar realizado em 2013, com amostra de 429 mulheres internadas em hospitais no município de Guarapuava. Os dados foram analisados por meio de análise bivariada e regressão logística. O projeto foi aprovado por Comitê de Ética em Pesquisa. **Resultados:** do total de mulheres internadas, 45 (10,4%) foram por doença inflamatória do colo do útero. Pertencer ao público alvo, ter realizado o exame no mínimo uma vez, procurar o serviço regularmente para o controle de saúde e apresentar o resultado dentro dos limites de normalidade em 1 ano atuaram como fatores de proteção contra a ocorrência dessas internações. **Conclusão:** o conhecimento dos fatores que se relacionam ao desfecho fornece subsídios para a readequação dos serviços que prestam assistência às mulheres, a fim de prevenir as internações.

Descritores: Doenças do colo do útero; saúde da mulher; atenção primária à saúde; hospitalização.

RESUMEN

Objetivo: analizar las internaciones por cervicitis y los factores que influncian su ocurrencia. **Método:** estudio seccional, prospectivo basado en una encuesta de morbilidad hospitalaria realizada en 2013, con muestra de 429 mujeres internadas en hospitales en el municipio de Guarapuava. Los datos se analizaron por medio de análisis bivariado y regresión logística. El estudio fue aprobado por Comité de Ética en Investigación. **Resultados:** del total de mujeres internadas, 45 (10,4%) lo fueron por cervicitis. Pertenecer al público objetivo, haber realizado el examen al menos una vez, buscar el servicio regularmente para el control de salud y presentar el resultado dentro de los límites de la normalidad en 01 año actuaron como factores de protección respecto a la ocurrencia de estas hospitalizaciones. **Conclusión:** el conocimiento de los factores que se relacionan al desenlace proporciona subsidios para la readequación de los servicios que prestan asistencia a las mujeres, a fin de prevenir las internaciones.

Descriptores: Enfermedades del cuello del útero; salud de la mujer; atención primaria de salud; hospitalización.

INTRODUCTION

Inflammatory disease of cervix uteri is a health problem of varied etiology which affects the cervical-vaginal region of women and is characterized by a set of reactions to any tissue aggression, whether bacterial, viral, fungal, parasitic or post-traumatic stress disorder. It can present asymptotically, with the cytopathological examination (CP) being one of the means for its detection¹.

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The CP exam is considered an effective tool for the early identification of cervical cancer development, as it still helps detect inflammatory changes even if the characteristic symptoms are still absent^{2,3}, which can be suggestive of cervical intraepithelial neoplasia⁴ if persisting even after specific treatment. According to the current recommendations of the National Cancer Institute (INCA), this test should be offered to women in the age group between 25 and 64 years, as well as those who have already started sexual activity⁴.

Although investments in the prevention, diagnosis and detection areas have shown advances due to governmental efforts, hospitalizations for inflammatory disease of cervix uteri represent a failure to develop actions and services in primary healthcare (PHC), representing public expenditure in the health system of approximately R\$55,000.00 in the year 2018^{5,6}.

Inflammatory disease of cervix uteri is classified by the Ministry of Health (MOH) as a sensitive condition to PHC, and hospitalizations for it are part of a set of health problems for which resolution at this level of care would reduce the risk of hospitalization⁷. Thus, when analyzing the proportion of hospitalizations due to this condition, one can indirectly evaluate the quality of the service provided in the first level of healthcare for women. Furthermore, by identifying factors that can be improved in women's healthcare programs, it is possible to generate indicators which enable them to subsidize public health policies, aiming to increase the performance of professionals and especially nursing professionals in managing and adopting effective therapeutic protocols for the female population.

Even with the increase in coverage and expansion of healthcare services in basic care, the proportion of hospitalizations due to inflammatory disease of cervix uteri is not only related to the conditions of quality and access to PHC⁸. Thus, this study assumes that these hospitalizations may also have their origin in social determinants such as income and education, since the health-disease process can be socially determined. In view of the above, the objective of this study was to analyze the hospitalizations for inflammatory disease of cervix uteri and the factors which influence its occurrence.

LITERATURE REVIEW

The CP exam contributes to detecting inflammatory and infectious processes of the female genital tract, while also identifying the intensity of the inflammatory reaction as well as the etiological agent. Due to their high incidence, these alterations are considered one of the most common clinical complaints among women⁹.

Female vulnerability to inflammation may be related to some practices such as sexual life habits, the quantity of partners, menstrual cycle, immunity, socioeconomic factors, age and the anatomical location of the female genital tract, with postmenopausal women being more susceptible as squamous epithelial atrophy facilitates inflammatory reactions occurring¹⁰. Early detection of inflammation and causative agents is of extreme importance for the correct treatment. Among the agents most commonly found are suggestive findings of *Gardnerella vaginalis*, *Candida sp* and *Trichomonas vaginalis*¹⁰.

Gardnerella vaginalis is a gram-negative bacillus. The manifestations resulting from its proliferation include vaginal discharge with greyish or yellowish coloration, a foul smell, and absence of local manifestations. It is a member of the female vaginal flora, however it may predominate due to some disequilibrium in this flora, resulting in the vaginal infection called bacterial vaginosis⁹.

In contrast to the local manifestations presented by the abovementioned microorganism, vaginal candidiasis (yeast infection) is characterized by intense pruritus, dyspareunia and white vaginal discharge, thick, odorless and cheesy. The responsible microorganism is the *Candida albicans* fungus, which may have its replication favored by some specific situations like Diabetes Mellitus, immunosuppression, pregnancy and hormonal therapies⁹.

Trichomonas vaginalis is responsible for the sexually transmitted infection (STI) called Trichomoniasis, which presents a large amount of clinical manifestations that vary according to the individual conditions and the number of infecting parasites. It is a scourge which inhabits the mucus and vaginal secretions of women, whereas in men it can colonize the urethra, prostate and epididymis. Transmission primarily occurs through sexual intercourse, and has been associated with transmitting the Human Immunodeficiency Virus (HIV), pelvic inflammatory disease, pre-disposition to cervical cancer, preterm birth and infertility⁹.

METHOD

This study is part of a larger study which aimed to analyze the proportion of hospitalizations due to Ambulatory Care Sensitive Condition hospitalizations (ACSCH) in women and the factors associated with these hospitalizations, indirectly assessing the quality of women's healthcare in the scope of basic care. It is therefore a prospective, cross-sectional study based on a hospital morbidity survey conducted between March and June 2013 in the municipality of Guarapuava, Paraná, at the 5th Regional Health Center, with an estimated population of 180,334 inhabitants¹¹. The municipality has two general hospitals of medium and high complexity, both references for hospitalizations in the Unified Health System (*SUS*).

Thus, the final cut-off for the sample calculation taken from the reference population for the larger project resulted in 429 women. However, for the sample composition of this study and in order to meet the study objectives, the women considered eligible for inclusion in the study were those admitted/hospitalized by the *SUS*, with only the main diagnosis of Inflammatory disease of cervix uteri (ICD-10: N72) recorded in the Authorization of Hospital Hospitalization (*AHH*) being considered.

Hospital admissions which ended in death, patients transferred to other units/hospitals or those who were unable to respond to the questionnaire were excluded. There was no upper age limit for inclusion in the study. The minimum age was 14 years, since hospitalization with a lower age range occurred in the pediatrics sector in both hospitals. Thus, the final sample of this study resulted in 45 women.

The women were interviewed during hospitalization and after signing the Informed Consent Form (ICF). Each hospital was visited from Monday to Friday. The sociodemographic and socioeconomic characteristics (age, education, marital status, income) were defined as independent variables in relation to the study outcome (hospitalized or not for inflammatory disease of cervix uteri), as well as variables related to the CP cervix exam (periodicity of the examination, previous results, reason for the demand of the health service and regular health control, given by the regular and periodic search of health services in the last 12 months).

The variables were dichotomized. The data were analyzed by Epiinfo version 3.3.2 and SPSS version 20.0 software. A bivariate analysis was performed at each determination level using Pearson's Chi-Squared and/or Fisher's Exact Tests in order to study the association between the independent variables and the occurrence or not of the outcome. Variables which were statistically significant in the bivariate analysis were included in the Logistic Regression using an Odds Ratio to control the effects of potentially confounding variables. The significance level was set at $p < 0.05$. The quality of fit was assessed by the Hosmer-Lemeshow Test. The study was approved by the Research Ethics Committee of the State University of Maringá (UEM) under protocol no. 304.032/06/05/2013.

RESULTS AND DISCUSSION

Of the 429 women admitted to both hospitals, 45 were due to inflammatory disease of cervix uteri. The duration of hospitalization was on average 5.3 days (± 3.1) and the mean age among the women was 50.2 years (± 20.3 years). The majority (26 - 57.7%) were married or had a stable union with their partner, had education of less than 4 years (29 - 64.4%), and income lower than 3 minimum salaries (40 - 88.8%).

Despite the wide coverage of women assisted under PHC, hospitalizations for inflammatory disease of cervix uteri analyzed in this study could be avoided by introducing prevention, control, diagnosis and early treatment measures. Considered as Ambulatory Care Sensitive Condition (ACSC), inflammatory disease of cervix uteri may be related to the living conditions of the population who present worse socioeconomic situations and a lack of knowledge about preventive and educational issues. Other studies have already pointed out socioeconomic issues and education with the highest proportion of ACSCH^{12,13}, as worse socioeconomic conditions result in difficulty of access to health services and support to the social support network, while low education leads to difficulties in adopting healthy habits and adherence to treatment¹³.

It was possible to observe that 35 (77.7%) of the hospitalized women reported regular health checks, nevertheless 13 (28.8%) never performed the CP exam. This situation can denote a failure in the care provided in attending this woman to control her gynecological health or with the woman herself refusing to perform the examination. Disinformation regarding the examination stages, feelings of shame and exposure, fear of an altered outcome, discomfort and pain are some of the factors which contribute to not performing the examination by women^{14,15}.

In addition, 18 (56.2%) reported attending the health service to perform the CP due to the presence of some symptom or complaint. Regarding the last CP exam result, 23 (71.8%) mentioned an alteration in it. Both attitudes demonstrate a failure in health promotion, since when some alteration is detected, the PHC no longer has a subsidy for control continuity in most cases, resulting in referrals to secondary or tertiary care services, as in the case of hospitalizations found in this study.

The other analyzed variables and the bivariate analysis of the association between the studied characteristics and hospitalizations for inflammatory disease of cervix uteri are described in Table 1.

TABLE 1: Bivariate analysis of the association between the studied characteristics and hospitalizations for inflammatory disease of cervix uteri. Guarapuava, Paraná, 2013.

Variable	ICD-10 N72 (f=45)		Other Conditions (f=384)		OR (95%CI)	p-value
	f	%	f	%		
Target clientele(*)						0.00058
Yes	15	33.3	231	60.1	0.3 (0.62 – 0.18)	
No	30	66.6	153	39.8	1	
Education (years)						0.85141
< 4 years	29	64.4	242	63	1.1 (0.56 – 2.03)	
> 4 years	16	35.5	142	36.9	1	
Marital status						0.76798
Married/stable union	26	57.7	213	55.4	1.1 (0.59 – 2.05)	
Single/separated/widowed	19	42.2	171	44.5	1	
Income (minimum salaries)						0.90434
< 3	40	88.8	339	88.2	1.1 (0.40 – 2.83)	
≥ 3	5	11.1	45	11.7	1	
Regular health control						0.53035
Yes	35	77.7	282	73.4	1.3 (0.61 – 2.65)	
No	10	22.2	102	26.5	1	
Performed exam sometime						0.00036
Yes	32	71.1	327	85.1	0.3 (0.60 – 0.17)	
No	13	28.8	57	14.8	1	
Performed exam annually**						0.51027
Yes	18	56.2	164	50.1	1.3 (0.62 – 2.65)	
No	14	43.7	163	49.8	1	
Last exam < 1 year						0.13514
Yes	19	59.3	149	45.5	1.7 (0.84 – 3.63)	
No	13	40.6	178	54.4	1	
Reason for the exam request						0.00000
Routine	14	43.7	272	83.1	0.4 (0.31 - 0.08)	
Symptoms/Complaints	18	56.2	55	16.8	1	
Result of the last exam						0.00000
Normal	9	28.1	255	77.9	0.1 (0.22 – 0.05)	
Altered	23	71.8	72	22	1	

(*) Stipulated age range (25 to 64 years)

(**) Including women who have ever taken the test

The results of the multiple logistic regression analysis to control the effects of potentially confounding variables revealed that the variables which were statistically associated to the occurrence of hospitalizations due to inflammatory disease of cervix uteri in this final model were: belonging to the target clientele, had performed the examination at least once, attending the service regularly for health control and presenting a result within normal limits in 1 year, as shown in Table 2. All these aspects acted as protective factors against the occurrence of these hospitalizations. The other variables did not refute the null hypothesis, as they were not statistically significant in relation to the study outcome.

TABLE 2: Logistic regression of factors associated with hospitalization for inflammatory disease of cervix uteri. Guarapuava, Paraná, 2013.

Variable	Adjusted OR	95% CI	p-value
Target clientele	0.33	(1.02 – 2.41)	0.00092
Performed the exam sometime	0.31	(1.39 – 3.52)	0.00089
Reason for the exam request	0.66	(1.12 – 2.57)	0.00441
Result of the last exam	0.77	(1.14 – 2.69)	0.00994

The search for factors associated with a higher probability of hospitalization due to inflammatory disease of cervix uteri in the 25 to 64 age group in this study resulted in identifying protective factors for the occurrence of the outcome. Thus, women considered as the target clientele for public health policy actions have lower chances of hospitalization for this pathology. This is due to organized screening, in which a woman reaching the mentioned age group is included in the priority group and is then followed-up throughout the recommended period¹⁶, providing detection and treatment of inflammation in the early stages. Studies have demonstrated that performing the test, in addition to being in the recommended age range^{16,17}, which according to data from the Ministry of Health has no impact on the reduction or incidence of cervical cancer⁴, but can detect cervicovaginal inflammation which in turn can provide resolute treatment still in PHC as recommended by this level of care.

In this study, 31 (71,1%) women reported having performed the exam at least once, and this variable is a protective factor against the occurrence of hospitalization for inflammatory disease of cervix uteri. A study also carried out in the Southern Region of Brazil showed that most of the women studied had already undergone the examination¹⁷. Even though it is not its design, the CP examination is effective in detecting inflammatory and infectious processes of the female genital tract¹⁸. In addition, the demand for preventive health services coupled with the awareness of the population about the importance of self-care and understanding the health/disease process is one of the pillars of nurses' educational work in PHC¹⁹.

The fact of attending the health service on a routine basis was also considered a protection factor in this study. Attending health units by the female population is not usually based on a critical reflection on the importance of performing the CP exam for preventing inflammatory lesions or precursors of cervical cancer, but due to the presence of gynecological complaints. Thus, the tracking stops being preventive to become a diagnostic tool. In addition, gynecological consultation, as well as being a space for health promotion and disease prevention, also provides for exercising women's sexual and reproductive rights²⁰, and must permeate their entire life cycle.

The result of the last examination with a normal indication was presented as a protection factor against the occurrence of hospitalizations due to inflammatory disease of cervix uteri and was found in 9 (28.1%) women. It is possible that this low prevalence is due to the factors which caused hospitalizations in this population. It is worth noting that an examination result with an indication of inflammation will not have an abnormality as an outcome, since the report is directed to the precursor lesions of neoplasia, but describes the microorganism responsible for the inflammation so that the appropriate treatment can be performed⁴.

Thus, all of the protection factors listed in this study include actions to promote health, which demonstrate the potential of PHC in the fight against and to decrease both the occurrence of hospitalizations and rehospitalizations derived from cervical inflammation.

CONCLUSION

In this study it was possible to identify factors which influenced the occurrence of hospitalizations derived from inflammatory disease of cervix uteri. Although some socioeconomic characteristics were relevant in this study, they were not associated with the studied outcome, refuting the initial assumption.

If on the one hand taking the CP exam at least once, belonging to the age group between 25 and 64 years old, the reason for requesting the exam and the result of the last preventive examination were protective factors for the woman and reduced the chance of hospitalization for this reason, on the other hand the fact that women had never performed such an examination demonstrates failures in actions and services in clinical practice in PHC.

The findings of this study are based on PHC actions directed at the female population. It is necessary to reinforce already existing actions such as an active search and timely screening by the multiprofessional team as they meet the demands in their totality, in addition to enabling the construction of an evidence-based therapeutic plan which is focused on the promotion and protection strategies in force in the country.

It should be emphasized that the analyzed hospitalizations were only those occurring within the *SUS*, which means only a partial view of reality. It is worth mentioning that this analysis only refers to inpatients, and thus their relationship and the use of health services need to be evaluated in a judicious way since the proportion of ACSCH does not cover the entire population and thereby configures as a study limitation; also, a scarcity of publications on the subject did not allow comparisons since the majority broadly encompass the indicator, while the group related to the female population does not have much visibility when they discriminate against it.

Thus, it is suggested that future studies use other quality indicators of basic care which are based on a conceptual framework that establishes which factors are influenced by this healthcare model.

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