



MORBIDITY AND MORTALITY FROM CERVICAL CANCER
CENÁRIO DE MORBIMORTALIDADE POR CÂNCER DE COLO UTERINO
ESCENARIO DE MORBILIDAD Y MORATALIDAD POR CÁNCER DEL CUELLO UTERINO

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ABSTRACT

Objective: to verify morbidity and mortality from cervical cancer. **Method:** longitudinal, descriptive and documentary study with a quantitative approach. Data were obtained from the DATASUS website, involving notifications and deaths according to age and Brazilian geographic regions. For the data processing, the software Excel version 2007 was used and, for the analysis, the descriptive statistics was used. **Results:** in the period from 2008 to 2012 there was a decreasing trend in the incidence of cervical cancer in younger women hospitalized in public hospitals. When comparing morbidity and mortality, according to the age groups and regions, it was observed that in the Southeast region the deaths occurred in percentages higher than the morbidity. **Conclusion:** the analyzed scenario allowed us to identify the age pattern of women and the regions with greater risks and injuries. This information made it possible to indirectly assess the quality of care and the access to health services. **Descriptors:** Cancer; Cervical Cancer; Mortality; Morbidity.

RESUMO

Objetivo: verificar a morbimortalidade por câncer de colo uterino. **Método:** estudo longitudinal, descritivo e documental, de abordagem quantitativa. Os dados foram obtidos no site do DATASUS, envolvendo as variáveis notificações e óbitos, segundo a idade e as regiões geográficas brasileiras. Para o processamento dos dados, utilizou-se o software Excel versão 2007 e, para a análise, a estatística descritiva. **Resultados:** no período de 2008 a 2012, ocorreu uma tendência decrescente na incidência por câncer de colo uterino em mulheres mais jovens internadas em hospitais da rede pública. Ao comparar a morbidade e a mortalidade, segundo as faixas etárias e regiões, observou-se que na região Sudeste as mortes ocorreram em percentuais maiores que a morbidade. **Conclusão:** o cenário analisado permitiu identificar o padrão etário das mulheres e as regiões com maiores riscos e agravos. Essas informações possibilitaram avaliar indiretamente a qualidade da assistência e do acesso aos serviços de saúde. **Descritores:** Câncer; Neoplasias do Colo do Útero; Mortalidade; Morbidade.

RESUMEN

Objetivo: verificar la morbilidad y la mortalidad por cáncer del cuello uterino. **Método:** estudio longitudinal, descriptivo y documental, de enfoque cuantitativo. Los datos fueron obtenidos en el site del DATASUS, envolviendo las variables notificaciones y óbitos, según la edad y las regiones geográficas brasileñas. Para el procesamiento de los datos, se utilizó el software Excel versión 2007 y para el análisis se usó la estadística descriptiva. **Resultados:** en el período de 2008 a 2012, hubo una tendencia decreciente en la incidencia por cáncer del cuello uterino en mujeres más jóvenes internadas en hospitales de la red pública. Al comparar la morbilidad y la mortalidad, según los grupos de edad y regiones, se observó que en las regiones Sudeste las muertes ocurrieron en porcentajes mayores que la morbilidad. **Conclusión:** el escenario analizado permitió identificar el padrón de edad de las mujeres y las regiones con mayores riesgos y agravios. Esas informaciones posibilitaron evaluar indirectamente la calidad de la asistencia y del acceso a los servicios de salud. **Descriptores:** Câncer; Câncer de Cuello Uterino; Mortalidad; Morbilidad.

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INTRODUCTION

In recent decades, cancer has increased in proportion, becoming a global public health problem.¹ For the year 2013, the National Cancer Institute (INCA) estimated the occurrence of 518,510 new cases of cancer, 257,870 for males and 260,640 for females. Mortality has also increased considerably over the last decades, representing, in 2010, the second cause of death of the Brazilian population. Related to cervical cancer (CC), this is the second most common neoplasm and the fourth leading cause of death in Brazil, which causes about 4,800 deaths and affects 18,430 new women per year.²⁻⁶

Cervical cancer is characterized as a condition caused by progressive changes in the lining epithelium of the uterine cervix, which can progress to a cancerous lesion (carcinoma). A disordered replication of this epithelium may occur, which compromises the underlying tissue (stroma) and may invade neighboring or distant organs in a process that may take several years.^{4,7}

A long phase of preinvasive disease called Cervical Intraepithelial Neoplasia (CIN) precedes cervical cancer. Under the microscope this is characterized as a series of events that progress from cellular atypia to varying degrees of dysplasia or intraepithelial-cervical neoplasia before progressing to an invasive cancerous lesion. Thus, the natural history of cervical cancer can be defined as progressive intraepithelial changes that, when untreated, may progress to invasive carcinoma within 10 to 20 years.^{4,8}

Low socioeconomic status, nulliparity, age, having more than two sexual partners, non-use of condoms, use of contraceptives and the presence of some Sexually Transmissible Disease (STD) are predominant risk factors for the development of cervical cancer.⁹

The technologies for the diagnosis and treatment of precursor lesions of cervical cancer allow healing in 100% of cases diagnosed in the initial phase.¹⁰ The preventive examination, oncotic colpocitology, allows the diagnosis in 90% of cases of CC. It should be noted that the pre-clinical stage of cervical cancer (precursor lesions) does not present symptoms and can be detected by periodic cytopathological

examination and confirmed by colposcopy and histopathological examination of the biopsied material.²

Thus, health planning can be established by the quantitative analysis of morbidity and mortality data, since they allow the identification of trends and geographical patterns of epidemiological indicators. In light of the above, this study aims to analyze mortality and morbidity due to cervical cancer.

METHOD

This is a longitudinal, descriptive and documentary study, with a quantitative approach. The data collected refer to the Brazilian geographic regions, considering the notifications and deaths of women in the SUS hospitals, by place of hospitalization, between 2008 and 2012. Morbidity and mortality data were obtained through the online system of the Department of Informatics of the Unified Health System (DATASUS) and collected from May to August 2013.

Brazil is a country located in South America and has a total area of 8,514,876,599 Km², divided into five regions. According to the 2010 census, Brazil has a total of 190,732,694 inhabitants. In the composition of its population, 97,342,162 inhabitants are female, and there were 487,137 of deaths of females, of which 4.986 were due to cervical cancer in 2010.¹¹

For the data analysis, descriptive statistics (simple and cross tables, figures and rates) were used with the aid of Statistics and Excel software.

RESULTS

In order to understand the mortality situation due to cervical cancer in Brazil, Figure 1 shows the variation in the number of deaths in the period from 1996 to 2011. In this, it is possible to identify an increase in the number of deaths during the course of years in the different regions of Brazil, with the exception of the South regions. In 1996, the region with the lowest number of deaths was the North, while the region with the largest number was the Southeast. After 14 years, the Southeast region remained with the largest number of deaths, and the Midwest had the lowest.



Figure 1. Number of cases of mortality from cervical cancer in Brazil in the period from 1996 to 2011, based on DATASUS. (RS, 2016).

Table 1 shows morbidity and mortality from cervical cancer in SUS hospitals, according to the age group in the five Brazilian geographic regions, from 2008 to 2012. It is observed that in 2008, 6,806 women aged less than 40 years were identified with cervical cancer; there were 13,399 cases in the age group of 40 to 59 years and 4,771 cases among elderly women. These results suffered few vaiations during 2009, 2010 and 2011; also in 2012, the results were similar, with 6,083 cases in women under 40 years of age, 11,521 cases in the age group between 40 and 59 years and 5,004 among elderly women, which shows a slight decrease in most of the age groups.

Table 1 shows that, unlike morbidity, mortality from this type of cancer increased in

all age groups. When comparing morbidity and mortality, according to the age groups and regions, it is observed that in the Southeast region the deaths occurred in percentages higher than the morbidity in most of the age groups, in the years studied. In the North region, this behavior is similar except for women under 20 years of age in 2008 and 2009, and for the elderly, in 2008. In contrast, in the Southern region, the percentage of deaths is lower than those of morbidity in women older than 20 years in all the studied years. The Northeast and Midwest regions showed variations.

Table 1. Hospital mortality and morbidity due to cervical cancer in SUS hospitals, by place of hospitalization, according to age group. Units of the Federation - Brazil - 2008 to 2012. Mortality Rate: ratio between number of deaths and number of morbidity in the period, multiplied by 100. Santa Maria (RS), Brazil.

		2008		2009		2010		2011		2012	
Age group	R	Morb N(%)	Death N(%)	Morb	Death	Morb	Death	Morb	Death	Morb	Death
<20	N	4 (4.5)	-	11 (9.5)	-	8 (7.8)	1 (20)	8 (7.5)	1 (20.0)	2 (2.4)	-
	NE	14 (15.9)	-	29 (25.0)	-	30 (29.1)	2 (40)	31 (29.0)	2 (40.0)	20 (24.1)	-
	SE	33 (37.5)	1 (33.3)	39 (33.6)	-	40 (38.8)	1 (20)	38 (35.5)	1 (20.0)	45 (54.2)	1 (50)
	S	28 (31.8)	1 (33.3)	30 (25.9)	-	20 (19.4)	1 (20)	25 (23.4)	1 (20.0)	11 (13.3)	-
	MW	9 (10.2)	1 (33.3)	7 (6.0)	-	5 (4.9)	-	5 (4.7)	-	5 (6.0)	1 (50)
	Br	88 (100)	3 (100)	116 (100)	-	103 (100)	5 (100)	107 (100)	5 (100)	83 (100)	2 (100)
	N	419 (6.2)	18 (8.3)	339 (5.2)	25 (9.6)	279 (4.4)	35 (11.3)	315 (5.5)	29 (9.1)	313 (5.2)	32 (9.2)
20 to 39	NE	1906 (28.4)	56 (25.8)	1807 (27.6)	72 (27.7)	1614 (25.5)	78 (25.2)	1642 (28.6)	95 (29.7)	1690 (28.2)	114 (32.9)
	SE	2164 (32.2)	89 (41.0)	2345 (35.8)	89 (34.2)	2540 (40.1)	124 (40.0)	2005 (34.9)	109 (34.1)	2187 (36.5)	125 (36.0)
	S	1711 (25.5)	33 (15.2)	1498 (22.9)	38 (14.6)	1418 (22.4)	41 (13.2)	1321 (23.0)	56 (17.5)	1391 (23.2)	54 (15.6)
	MW	518 (7.7)	21 (9.7)	559 (8.5)	36 (13.8)	486 (7.7)	32 (10.3)	455 (7.9)	31 (9.7)	419 (7.0)	22 (6.3)
	Br	6718 (100)	217 (100)	6548 (100)	260 (100)	6337 (100)	310 (100)	5738 (100)	320 (100)	6000 (100)	347 (100)
	N	688 (5.1)	37 (5.7)	652 (5.1)	70 (8.1)	602 (4.8)	93 (10.4)	609 (5.2)	74 (7.9)	635 (5.5)	81 (8.9)
	NE	3985 (29.7)	140 (21.5)	3671 (28.7)	222 (25.6)	3359 (27.0)	199 (22.3)	3298 (28.2)	240 (25.6)	3280 (28.5)	237 (26.0)
40 to 59	SE	4874 (36.4)	314 (48.2)	4582 (35.8)	382 (44.0)	4719 (38.0)	408 (45.6)	4382 (37.5)	421 (44.9)	4527 (39.3)	389 (42.6)
	S	2861 (21.4)	102 (15.6)	2815 (22.0)	119 (13.7)	2716 (21.9)	116 (13.0)	2515 (21.5)	129 (13.8)	2191 (19.0)	137 (15.0)
	MW	991 (7.4)	59 (9.0)	1086 (8.5)	75 (8.6)	1026 (8.3)	78 (8.7)	884 (7.6)	74 (7.9)	888 (7.23)	69 (7.6)
	Br	13399 (100)	652 (100)	12806 (100)	868 (100)	12422 (100)	894 (100)	11688 (100)	938 (100)	11521 (100)	913 (100)
	N	232 (4.9)	22 (4.0)	262 (5.3)	39 (5.9)	287 (5.8)	52 (7.4)	270 (5.4)	58 (7.7)	241 (4.8)	40 (5.3)
	NE	1117 (23.4)	114 (21.0)	1246 (25.4)	133 (20.1)	1159 (23.6)	178 (25.2)	1230 (24.6)	178 (23.5)	1257 (25.1)	197 (26.0)
	SE	2177 (45.6)	284 (52.2)	2110 (43.0)	320 (48.3)	2193 (44.6)	334 (47.2)	2192 (43.8)	361 (47.7)	2218 (44.3)	360 (47.4)
≥60	S	936 (19.6)	93 (17.1)	960 (19.6)	106 (16.0)	951 (19.3)	85 (12.0)	998 (20.0)	106 (14.0)	998 (19.9)	101 (13.3)
	MW	309 (6.5)	31 (5.7)	327 (6.7)	64 (9.7)	326 (6.6)	58 (8.2)	310 (6.2)	54 (7.1)	290 (5.8)	61 (8.0)
	Br	4771 (100)	544 (100)	4905 (100)	662 (100)	4916 (100)	707 (100)	5000 (100)	757 (100)	5004 (100)	759 (100)

Legend: R = Region of Brazil; Morb = morbidity; Mort = mortality; Br = Brazil - RS, 2016.

Table 2 shows the mortality rates from cervical cancer in women attended by the SUS, according to the age group, between 2008 and 2012. It can be noticed that the variations in the mortality rate in this period had a gradual increase, except in women

under 20 years of age, among whom there was a reduction from 3.41% to 2.41%. The highest rates were observed in the elderly, and the highest one occurred in the year 2012, with 15.17%.

Table 2. Mortality rate of patients with cervical cancer in SUS hospitals by place of hospitalization, according to age group. Units of the Federation - Brazil, from 2008 to 2012. Santa Maria (RS), Brazil.

Age group	2008	2009	2010	2011	2012
<20	3.41	0	4.85	4.67	2.41
20 to 39	2.23	3.97	4.89	5.58	5.78
40 to 59	4.87	6.78	7.20	8.03	7.92
≥60	11.40	13.50	14.38	15.14	15.17

Note: Mortality Rate - Ratio between the number of deaths and the number of morbidity, in the period, multiplied by 100.

DISCUSSION

The increase in incidence and mortality from cervical cancer in Brazil is an important public health problem. In this sense, data from the Population and Hospital Cancer Registries and mortality data are the basis of the information to study the incidence of cancer in Brazil.¹²⁻³

In Brazil, from 1979 to 1998, mortality rates increased from 3.44 to 4.45 per 100,000 women, showing an increase in mortality due to CC.¹⁴ The standardized mortality rate ranged from 4.39 deaths per 100,000 women in 2000 to 4.04 in 2010, which demonstrates stability.¹⁵

In the present study, variations in the number of deaths due to cervical cancer in the Brazilian regions allowed us to measure the evolution of mortality in the period from 1996 to 2011. It was found that the number of deaths continued to increase, but with few variations in some regions and a more expressive increase in others. The Northeast region was the one with the highest temporal increase in the number of deaths.

Cervical cancer is associated with low socioeconomic level, that is, with groups that are more socially vulnerable, as they have difficulties in accessing the service network for early detection and treatment of the disease and its precursor lesions. Economic and geographical difficulties, insufficiency of services and cultural issues, such as fear and prejudice from partners, are the main barriers found in these groups.¹⁶

When analyzing the SUS hospitals' mortality rate from cervical cancer and considering the age, this study shows that from 2008 to 2012 there was a gradual increase in mortality, except in women under 20 years of age. The most significant rates were observed in the elderly, of which the largest was in 2012 and the lowest in 2009 in women under 39 years of age. It can be observed that, in all the years studied, as age increases, mortality rates also increase, corroborating with the gross general rates described by the Brazilian MOH in the year 2000-2010, of 54.30 deaths per thousand women in the age group of 70 years or more, 13.56 in the age group of 60 to 69 years, 6.11 in the age group of 50 to 59 years, 1.09 in the age group of 40 to 49 years and 1.74 in the age group of children under 10 years of age. However, these data contrast with the MOH when it states that gross general mortality rates fell in all of these age groups in the period from 2000 to 2010.¹⁵

The results analyzed in table 1 show that from 2008 to 2012 the incidence of cervical

cancer decreased in women under 60 years and increased in the elderly. The decrease in incidence in women under 60 years of age may be associated with the expansion of actions and programs aimed at prevention and early detection of CC, especially since 1998, when the National Program for Cervical Cancer Control - *Viva Mulher* - began to be expanded nationwide. This program aims at the adoption of strategies for structuring the care network, by establishing an information system for monitoring of actions and mechanisms for mobilizing and attracting women's attention, as well as to defining competencies at the three levels of government.¹⁶⁻⁷

The increased incidence in women over 60 years of age may be related to the lack of programs and actions in the prevention and control of CC, as the low coverage of cytopathological examination at the time these women were younger. It should be remembered that, in Brazil, the CC cytological screening began in the late 1950s and early 1960s with low coverage, and did not initially constitute a collective practice. In 1983, with the establishment of the Program for Comprehensive Care to Women's Health (PAISM) and the creation of SUS in 1988 by the Ministry of Health, more consistent activities have been developed to prevent and combat cervical cancer.^{9,10} Another fact that may have caused an increase in the incidence from 2008 to 2012 in the age group over 60 years is the increase in life expectancy in the country. It is worth noting that aging contributes to the appearance of cancer, as it causes cellular alterations that increase the chances of malignancy.¹⁸

CC manifests itself from the age group of 20 to 29 years, increasing its risk rapidly until reaching the peak age between 50 and 60 years.¹⁹ On the other hand, the peak incidence occurs in the age group from 40 to 49 years old, and the percentage is small in those under 30 years.²⁰ With the increased coverage of the cytological examination, a decrease in mortality may be observed, especially in regions in which social and health conditions provide treatment and follow-up for all patients with altered exams. On the other hand, in less developed regions, where the target population is limited and part of the women receive care for at an advanced stage of the disease, there may be an increase in mortality.²¹

According to data shown in Table 1, mortality in women under 20 years is uncommon and absent in some regions. However, for these women to die in this age

group it is necessary that the disease has started a long time before, since CC can progress to invasive carcinoma within 10 to 20 years.¹⁶ This justifies the need to expand cervical cancer screening in younger women. In Paraná state, since the implementation of the screening program, with an increase in the coverage of cytopathological examination from 43 to 86% of the adult female population during a five-year period of increase of the program, there was an evident decrease in mortality due to cervical cancer.¹¹

This study shows that from 2008 to 2012 (Table 1), without taking into account Brazilian regions, there was an increase in the number of deaths from cervical cancer in all women older than 20 years, especially among those aged between 40 and 59 years old.

In Recife, between 2000 and 2004, statistical measures of central tendency and dispersion of deaths presented mean and median of 57.7 and 57.0 years, respectively, and a standard deviation of 16.2 years. The majority of deaths occurred in women under the age of 60 (54.7%), and the age group from 40 to 59 years old also stood out, with a presence of approximately 20%.⁴⁰ A research²² carried out in 2002-2007 with a sample of women residing in RS identified a higher mortality in the age group from 40 to 49, with 23.05%, from 50 to 59 years, with 24.15% and under 60 years, with 62.63 %. In the State of Santa Catarina, in the period from 2000 to 2009, the lowest mortality rate was among women aged 29 years or less, and the highest, in the age group of 50 years or older.²³

When comparing the percentages of morbidity and deaths in the regions, considering the age group, this study shows that in the Southeast region, deaths occurred with higher percentages than morbidity in practically all age groups in the years studied. In the Northeastern region had the lowest percentage of deaths, and the Midwest region had the highest percentage in relation to cases of morbidity, thus evidencing variations; however, such results may be inconsistent with reality, especially in relation to the Northeast region, considering a study²⁴ that showed the situation of mortality from CC in Brazil, especially in the Northeast region. That research identified that the condition of this disease can be more severe than that reported by the official bodies. This is because mortality rates are calculated from the notifications that are sent to the SIM by the respective populations. In view of this situation, it is necessary to qualify the SIM registry regarding the collection of deaths, awareness of the importance of correct and

complete filling of information on the underlying cause. In this way, it is possible to reduce the proportion of poorly defined causes, especially in less developed geographical areas.

There is a need to pay attention to the sub-registries of cancer-related deaths, as these may be the result of an incorrect completion of the cause of death, and the reduced mortality rates from this disease may be result from the naming of these deaths as non-defined or unspecified causes.²³ The distribution of mortality has an intrinsic relationship with the quality of the records of the Mortality Information System (SIM in Portuguese).²⁴

In relation to the South region, the percentages of deaths are lower than those of morbidity in the different years. This can be attributed to the early detection and treatment offered to women living in this region. The existence of an early detection method can reduce the morbidity and mortality associated with the course of the disease and can also reduce costs of the health system related to the treatment.⁴

CONCLUSION

When analyzing the scenario of morbidity and mortality due to cervical cancer in SUS hospitals, it was possible to observe that this disease showed a variation in its evolution patterns, which vary in the different age groups and regions of the country.

The data analyzed in the period from 2008 to 2012 showed a decreasing trend in incidence by CC in younger women. However, mortality has increased in women over 20 years of age, with a peak in the age group from 40 to 59 years. Some factors such as socioeconomic conditions, quality of care and the stage at which the cancer was diagnosed seem to be associated with such behavior. These and other factors such as the geographic distribution of the population and health services, the quality of the records of the Information System and of the cause of death may interfere with morbidity and mortality data.

However, the morbidity and mortality situation verified in the present study allowed identifying the age pattern of women and the regions with greater risks and injuries. This information makes it possible to indirectly assess the quality of care and access to health services and, therefore, support activities to promote, prevent and treat CC directed at women.

The reason for the decline in cases of cervical cancer is probably related to screening programs aimed at reaching women at risk for the disease. Also, with the incorporation of the vaccine against the HPV virus by the National Immunization Program, there may be a decrease in the incidence rates of this morbidity in the Brazilian regions, serving as an instrument to control this type of cancer and, consequently, contributing to the decrease of mortality rates. Given this context, it is suggested to monitor, plan, manage and evaluate public health policies focused on specific regions and age groups.

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