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Original Research Article

Evaluation of the impact of individual and environmental factors on the prognosis of women with vulvar cancer



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ABSTRACT

Introduction: Vulvar cancer is a rare type of cancer. In Poland in 2010 there were 491 cases of vulvar cancer. Prognostic factors that may influence the course of the disease and results of treatment can be divided into factors associated with tumor, individual factors of the patient (age, socioeconomic status, co-morbidities, body weight, motivation to comply) and environmental factors.

Aim: The purpose of this research was to evaluate the impact of individual and environmental factors on the prognosis of women with vulvar cancer, regardless of the clinical stage.

Material and methods: The study group consisted of 48 patients with invasive squamous cell carcinoma of the vulva treated surgically in the Department of Gynecological Oncology in Olsztyn in 1995–2008. Analysis included age, place of living, occupational status, marital status, obstetric history, co-morbidities, body weight, and healing of post-operative wound. Univariate analysis of the effect of these factors on survival and recurrence rates was performed.

Results and discussion: Univariate analysis showed a relationship between impaired post-operative wound healing and recurrence rate ($p < .05$). Wound healing complicated by abscess formation occurred most frequently in patients with T2 stage tumor and did not correlate with lymph node involvement. No effect of age, body weight, age at menarche and age at menopause, and number of births on the presence or absence of recurrence was observed ($p < .05$).

Conclusions: In patients with post-operative wound healing complications due to infection statistically significant worse survival rates have been observed. Vulvar cancer was repeatedly diagnosed 22 years after menopause, in its advanced stages (according to FIGO 1988). No correlation between survival rate and demographic factors, environmental factors, gynecological and obstetric history and co-morbidities was demonstrated. Difference between

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overall survival and disease-specific survival, that is, excluding deaths from causes unrelated to cancer, was 10%.

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1. Introduction

Vulvar cancer is a rare type of cancer. According to the National Cancer Registry, standardized incidence rate in 2010 was 1.1, when 491 new cases were reported.⁴ Prognostic factors that may influence course of the disease and treatment results are divided into three groups: (1) factors associated with the tumor, (2) individual factors that characterize the patient and (3) environmental factors, in which the patient lives. The majority of researches concerns factors associated with characteristics of tumor invasion. However, according to researchers environment and lifestyle might be responsible for the development and course of neoplastic disease in up to 80%. Among individual factors one may identify: (1) demographic factors such as age, race, socioeconomic status, (2) factors that affect general health status such as concomitant diseases, body weight, immunodeficiency states, patient mental status and (3) motivation to begin and continue to comply with physician. Environmental factors of the patient are also relevant, such as highly specialized medical education of physician (that ensures quick diagnosis and adequate treatment), availability of medical care (that is comfortable and affordable access, short waiting time) and socioeconomic status of the patient.²²

2. Aim

The purpose of this research was to determine, whether selected demographic and environmental features, regardless of clinical staging, affected prognosis of women with vulvar cancer admitted for surgical treatment.

3. Material and methods

3.1. Material

Study group consisted of 48 patients with squamous cell carcinoma (SCC) of the vulva treated surgically in the Department of Gynecologic Surgery in Olsztyn in 1995–2008. Data were collected from hospital records, outpatient medical records, from patients and their families. In the majority of patients ($n=38$; 79.2%) radical excision of the vulva with inguinal-femoral lymphadenectomy was performed. According to the 1995 FIGO classification 37.5% of patients were diagnosed with stages III and IV disease. Information on the number of patients with various staging, according to FIGO and TNM, are presented in Table 1.

The observation time of all patients ranged between 12 and 158 months (average of 49.4 months), while observation time of patients cured ranged between 25 and 158 months (average of 86.3 ± 38.5 months, median 80).

3.2. Statistical methods

Kaplan–Meier curves for overall survival were plotted. Differences between the two curves were compared with the use of log-rank test. In order to determine the impact of the chosen factors on survival, univariate Cox proportional hazards analysis was performed. For qualitative variables, depending on the number of subcategories, p value is the result of log-rank test (number of categories=2), or χ^2 test (number of categories >2). For quantitative variables hazard ratio (HR) was calculated. Univariate analyses of the impact of variables on the incidence of recurrence were performed. For qualitative variables p value was calculated for Pearson's χ^2 test of independence. Odds ratio (OR) was determined – standard deviation (SD), confidence interval (CI) and p value were defined. For quantitative variables U Mann–Whitney test was performed. P value less than .05 was considered statistically significant.

Analyses were conducted with the use of Statistica SoftStat 9.1.

4. Results

4.1. Environmental history

Average age of patients was 67.1 ± 11.9 years (range 28–87 years; median 67.5). Increased incidence was noted in patients over 60 years of age (81.3%). The most numerous group constituted patients between 60 and 70 years of age – (41.7%) and between 75 and 80 years of age – (18.8%). Data are presented in Fig. 1.

The majority of patients were residents of the cities ($n=37$; 77.1%). Only one-third of them came from rural areas. Marital status of the studied patients ($n=48$) was as follows: 27 were married (56.3%), 16 were widows (33.3%) and 5 single (10.4%). At the time of admission only 3 patients were professionally active (6.3%). Among the remaining patients, 18 were pensioners (37.5%), 24 retired on disability benefit (50.0%) and 3 respondents declared themselves unemployed (6.3%).

Table 1 – FIGO (1995) and TNM classification of SCC of the vulva.

FIGO	TNM	No.	Total number of patients n (%)
Stage I	T1N0M0	13	13 (27.08)
Stage II	T2N0M0	17	17 (35.42)
Stage III	T1N1M0	1	10 (20.83)
	T2N1M0	9	
Stage IV	T1N2M0	1	8 (16.67)
	T2N2M0	7	
Total			48 (100.00)

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