Gineco.eu [12] 71-74 [2016]
DOI: 10.18643/gieu.2016.71

gineco eu

The occurrence of the ureterohydronephrosis in advanced genital cancers in Romanian women: a small cohort study in Arad County Clinical Hospital

Abstract

Cervical and ovarian neoplasia are important causes of cancer-related mortality. Both are routinely associated with uretrohydronephrosis (UHN) an inflammation - induced dilatation of the urinary collecting system of the kidney. The purpose of this article is to identify the incidence and stage of these cancers and related UHN in a cohort of 43 patients from the Arad County Clinical Hospital. The relationships among them, as well as those with the patient current age, its age at diagnosis of neoplasia, the time after the initial diagnosis and residence area (rural vs. urban) were also analyzed. The mean age of occurrence of neoplasia was 55.85 years. We found a higher incidence of these cancers in rural areas than in urban areas. Most patients were in advanced stages (grade III, IV, and V), with only three being in stage II. UHN commonly accompanied these cancers and was found especially on the right side. There were significant associations between the residence area and the prevalence of bilateral UHN and unilateral left UHN. The unilateral right UHN, but not the unilateral left UHN, correlated directly with both the ovarian and cervical neoplasias. Therefore, we suggest that the implementation of specific rural national programmes for the screening and early diagnosis of ovarian and cervical cancer and their urinary complications should focus on patients 50 years or higher and consider the residence area as a potential factor influencing the incidence of these neoplasias.

Keywords: *women, genital cancer, cervix, ovary, ureterohydronephrosis*

Cristina Ghib Para[1], Ioan Ioiart[2], Voicu Dascau[3]

1. Department of Hematology, Faculty of Medicine, Pharmacy and Dentistry, "Vasile Goldis" Western University of Arad, Romania
2. Department of Urology, Faculty of Medicine, Pharmacy and Dentistry, "Vasile Goldis" Western University of Arad, Romania
3. Department of Obstetrics and Gynecology, Faculty of Medicine, Pharmacy and Dentistry, "Vasile Goldis" Western University of Arad, Romania

Correspondence:
Dr. Cristina Ghib Para
e-mail: ghib.cristina@uvvg.ro

Acknowledgments.
We want to thank to all the patients for the support. We also thanks to several colleagues for constructive comments and recommendations, which greatly improved the quality of the present article. In addition, the corresponding author (CGP) wishes to thank to the Department of Urology from the Arad County Clinical Hospital for their support in conducting the present study.

Abbreviations:
UHN = ureterohydronephrosis,
FABC = Federation of Romanian Cancer Patients Associations,
HPV = human papilomavirus

Introduction

Cervical cancer is considered to be the most frequent type of genital neoplasm in women. About 5% of all women and human neoplasias, and respectively 14.7% of cancer related-mortality, are caused by these tumor types[(1)]. Adenocarcinoma and squamous cell carcinoma are the main types of cervical cancer, with the latter representing up to 9 out of 10 cases. Therefore, it is routinely used for describing the histopathology of cervical cancer[(2)]. Infections with human papilomavirus (HPV) which are not diagnosed at an incipient stage and/or are not adequately treated serve as an important risk factor for genital neoplasias in women[(2)]. If identified and treated quickly, HPV infection, is easily manageable[(1)], but the infected patients usually do not go to consult a specialist doctor due to the lack of a suggestive symptomatology. The most common early symptoms of cervical cancer include irregular vaginal bleeding or discharge, whereas in advanced stages more intense symptoms, such as abdominal and pelvic pain, swelling of one or both legs, weight loss, and fatigue, are often encountered. This cancer is generally accompanied by uretrohydronephrosis (UHN), which is a dilatation of the ureter/pelvis of the kidney induced by the mechanical or inflammatory obstruction of the urinary tract[(3,4)].

Ovarian cancer has a rate of malignancy of 85%[(5)]. According to recent studies conducted by the Federation of Romanian Cancer Patients Associations, it is the fifth most common cancer among women, as well as the second cause of cancer-related deaths. In Romania, there are an estimated 1685 new cases of ovarian cancer each year, as well as 981 attributable deaths[(6)]. Such an elevated incidence, i.e. 9.4 cases per 100,000 inhabitants, is more than 50% higher than its average annual global incidence, that is 6.3 cases per 100,000 population[(6)]. The incidence of

Received:
February 05, 2016
Revised:
March 12, 2016
Accepted:
March 25, 2016

genital cancers in Romanian women till 2025 is predicted to increase by 21%[7,8], and as a consequence, there is a pressing need for research into this topic to estimate its incidence in different population sectors in Romania and to develop properly targeted and effective programs for population screening.

The present work aims to identify the incidence and stages of cervical and ovarian cancer and related UHN in a cohort of patients from the Arad Country Clinical Hospital. Furthermore to analyze the relationships between the patient age, its age at diagnosis of neoplasia, and time after the initial diagnosis and the aforementioned variables.

Methods

The study was conducted in the Department of Urology, Arad County Clinical Hospital. It involved a group of 43 randomly selected patients, which were admitted to this hospital for advanced cervical and ovarian cancer during the study period (2012-2016). The data were obtained via imagining tests, periodic medical examinations, and medical records - sources which are well-known to provide us with useful information on the stage of cancer and UHN. All patients have given their informed consent.

Statistical analysis

The relationships between the numerical variables (i.e. the patient current age, its age at diagnosis of neoplasia, and the time after the initial diagnosis) and dichotomous variables (i.e. the occurrence of cervical neoplasia, ovarian neoplasia, unilateral right ureterohydronephrosis, unilateral left ureterohydronephrosis, and bilateral ureterohydronephrosis) were established using Spearman ρ, rank-order correlations. A similar approach was used when comparing the former variables with the ordinal variables (the stage of cervical neoplasia, ovarian neoplasia, unilateral right UHN, unilateral left UHN, and bilateral UHN on the left side and right side). The associations between the ordinal and dichotomous variables were assessed using Kendall's τ correlations. All statistical analysis was performed using Statistica 10 software (Statsoft Inc.). A p value lower than 0.05 was considered significant. The measured values for numerical variables were expressed as mean with standard deviation.

Results

The mean age of patients was 59.06±12.34 years, whereas the average age at diagnosis of neoplasia was 55.85±12.20 years. The time after the initial diagnosis was, on average, 3.23±2.70 years. Among the investigated patients, 21 (48.83%) lived in rural areas and 22 (51.17%) in urban areas respectively. There were 34 cases (79.07%) with cervical neoplasia and 9 (20.93%) with ovarian neoplasia. Figure 1 illustrates the percentage of different stages of neoplasias studied here, whereas Table 1 shows the stages of each neoplasia type investigated (expressed as both absolute values and percentages). As can be seen from the aforementioned data, the stages III and IV were the most frequently encountered cancer stages in terms of overall incidence, as well as for each neoplasia type.

Table 2 presents the association between different types of UHN and neoplasia. One can easily observe that the unilateral left and bilateral UHN tend to be associated with the cervical neoplasia, while the unilateral right UHN with the ovarian neoplasia. Figure 2 reveals the incidence of different UHN types depending on the cancer type. It shows that, among the patients investigated, the bilateral UHN had the highest prevalence in the case of cervical neoplasia. The unilateral right UHN reached the maximum frequency for the ovarian cancer, whereas the unilateral left UHN had the lowest occurrence, irrespective of neoplasia type.

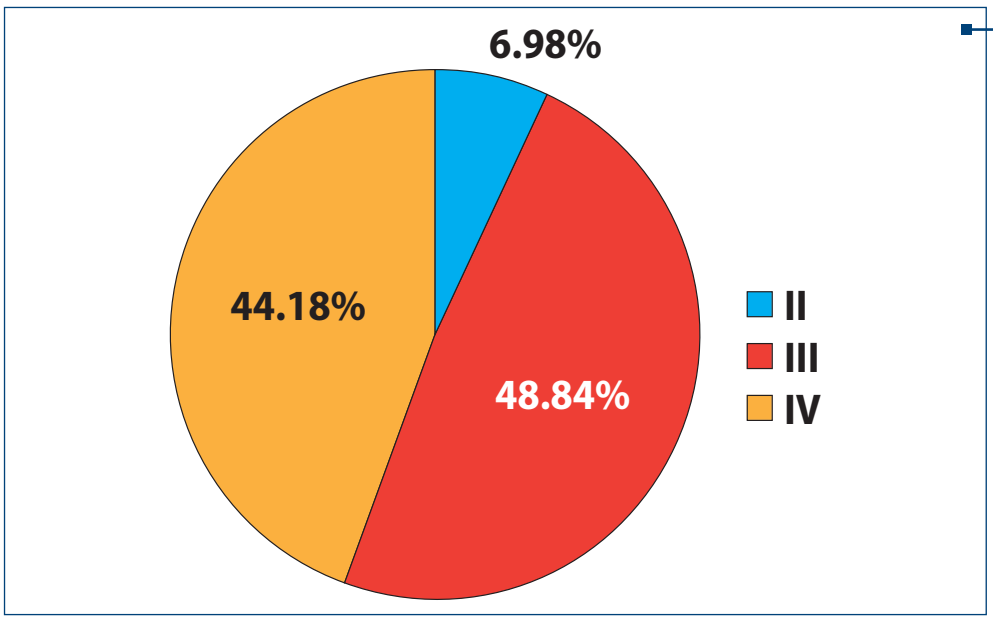

Figure 1. The percentage of different neoplasia stages. Data are expressed as percentages based on the ratio between the corresponding and total number of cases

Table 1 The stages of each neoplasia type investigated

Neoplasia type	GR II	%	GR III	%	GR IV	%
Cervical	3	8.82	16	47.06	15	44.12
Ovarian	-	-	5	55.56	4	44.44

Data are expressed as both absolute values and the corresponding percentages.
Legend. GR II: neoplasia grade II; GR III: neoplasia grade III; GR IV: neoplasia grade IV

Table 2 The association between different types of UHN and neoplasia

UHN type	Total	%	Cervical	%	Ovarian	%
Right	8	25.00	3	11.54	5	55.56
Left	7	19.44	6	23.08	1	11.11
Bilateral	20	55.56	17	65.38	3	33.33

Data are expressed as both absolute values and the corresponding percentages.
Legend. UHN type GR II: neoplasia grade II; GR III: neoplasia grade III; GR IV: neoplasia grade IV.

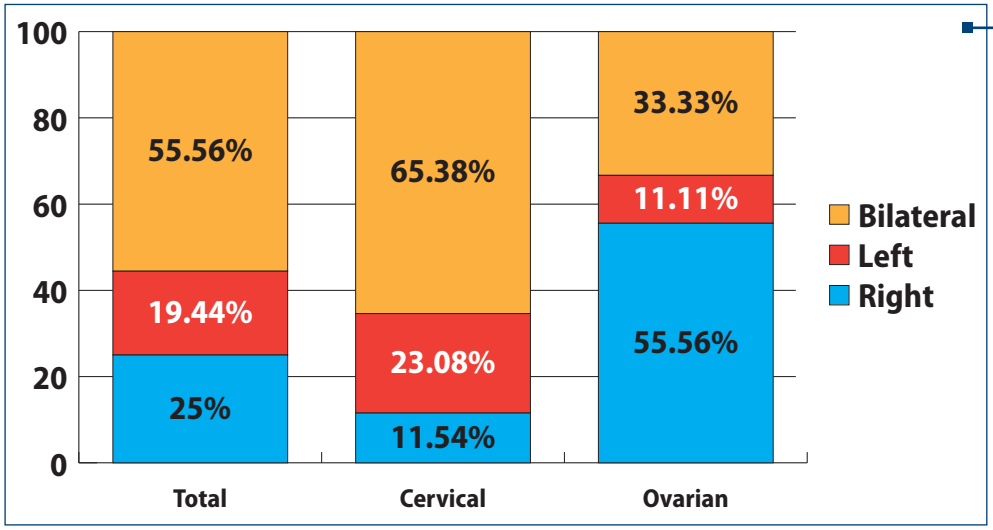

Figure 2. The incidence of different UHN types depending on the neoplasia type. Data are expressed as percentages based on the ratio between the corresponding and total number of patients

Figure 3 shows the frequency of different stages for each UHN type. Hence, it was found that UHN stage III had the lowest incidence for the bilateral UHN on the left side. The highest frequency of stage IV and the only patient with stage V were seen for the unilateral left UHN.

Statistical analysis shows that the time after the initial diagnosis correlated significantly with the occurrence of bilateral UHN ($\rho = -0.334$, $p < 0.05$), as well as with the stage of cervical cancer ($\rho = -0.344$, $p < 0.05$). However, no other consistent relationships were found between the patient current age, its age at diagnosis of neoplasia, and time after the initial diagnosis and the ordinal variables investigated ($\rho \leq 0.287$, $p > 0.05$).

Moreover, we found a significant positive association between the residence area and the prevalence of bilateral UHN ($\tau = 0.240$, $p > 0.05$), and a negative one with the incidence of unilateral left UHN ($\tau = -0.213$, $p > 0.05$). There was also a consistent medium relationship between the occurrence of neoplasia of the cervix uteri and that of the unilateral right UHN ($\tau = -0.434$, $p < 0.05$). In contrast, the latter variable associated positively with the incidence of ovarian neoplasia ($\tau = 0.424$, $p < 0.05$). In addition, the presence of bilateral UHN was inversely related to the incidence of both unilateral right UHN ($\tau = -0.233$, $p < 0.05$) and unilateral left UHN ($\tau = -0.294$, $p < 0.05$).

Discussion

The present work extends the current knowledge on the incidence of advanced ovarian and cervical cancer in Romania generally, and in Arad county espe-

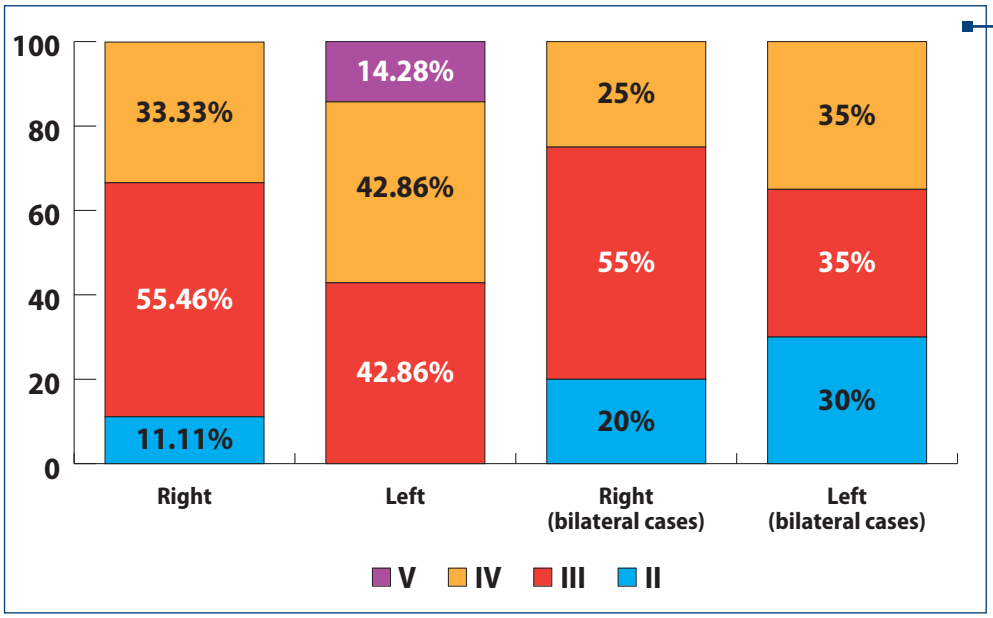

Figure 3. The frequency of different stages for each UHN type. Data are expressed as percentages based on the ratio between the corresponding and total number of cases

cially, and reveals new aspects about the relationships between these neoplasias and UHN[7,8]. A recent study conducted in the same hospital has investigated 1020 patients with cervical cancer and 118 with ovarian cancer and reported that the mean age of their occurrence is 53.21±13.21 years and 51.66±14.22 years, respectively[9]. This is slightly lower than the age when neoplasia was observed to occur in the present paper, and may be related to the sampling methodology used. According to the American College of Obstretitians and Gynecologists, the average age for the onset of is 59, which also closely relates to our results. In addition, the incidence of these cancers was higher in urban areas than in rural zones, thereby confirming the data reported by the Direction of Public Health of Arad county over the last years[9]. For example, in 2015, there were 913 new patients with such cancers in urban areas and only 623 in rural areas[7].

UHN was often encountered in patients with advanced genital neoplasia. We also observed that the bilateral UHN was more common compared to the unilateral form, with stage III being the most frequent stage. Such results are in line with most data reported in the clinical literature[1,3,5]. There were significant associations between the residence area (rural vs. urban) with two out of three UHN types, as well as direct relationships between the unilateral right UHN and both ovarian and cervical neoplasias. These findings strongly support the existence of consistent differences between the incidence of UHN, and implicitly neoplasia, in rural and urban areas[5].

Based on these results, we suggest that the residence area must be seriously taken into account as a potential factor affecting the prevalence of these cancers when developing targeted and effective programs for population screening. In addition, such initiatives should focus on women 50 years or higher. From a human point of view, these patients should to be monitored more carefully and their treatment must be accompanied by the most effective palliative methods, using the surgical and non-surgical methods solely for increasing the quality of patients' life.

Conclusions

Starting from this small-sized cohort study, we would like to emphasize the importance of the age at initial diagnosis and residence area for the future development in Romania of properly targeted and effective programs for the screening and early diagnosis of ovarian and cervical cancer and their urinary complications. ■

References

1. Chabner BA, Thomas TL, Longo DL. Harrison's manual of oncology. 2nd ed. New York: McGraw-Hill Professional Publishing, 2013.
2. Beers MH. The Merck manual of diagnosis and therapy. 18th Edition. NJ: Merck Reseasch Laboratories, 2006.
3. Robins SA, Fischmann J. Hydronephrosis; a radiologic classification based on anatomical variations. Radiology 1948, 50(5), 632-8.
4. Hacking C, Di Muzio B. Hydronephrosis. Available: http://radiopaedia.org/articles/hydronephrosis. Accessed 28 March 2016.
5. ACOG Practice Bulletin. Clinical Management Guidelines for Obstetrician-Gynecologists. Hereditary Breast and Ovarian Cancer 2009, 103, 243-245.
6. Ovarian cancer, the neoplasm with the lowest survival rate among women [Cancerul ovarian, neoplasmul cu cea mai mica rata de supravietuire in randul femeilor]. Available: http://fabc.ro/2014/05/cancerul-ovarian-neoplasmul-cu-cea-mai-mica-rata-de-supravietuire-in-randul-femeilor/. Accessed 25 March 2016.
7. Miron L, Miron I, Danila C, Dascalescu A. Proof-based oncologic therapy [Terapia oncologica bazata pe dovezi]. Iasi: Institutul European, Colectia Academica, 2008.
8. World Health Organization (WHO), The International Agency for Research on Cancer (IARC). Available: http://www.iacr.com.fr/. Accessed 29 March 2016.
9. Dascau V, Furau G, Paiusan L, Radu A, Furau C, Para C, Stanescu C, Onel C, Ulgut C. Statistical comparisons of gynecologic cancer age groups in the Ob-Gyn Department of the Arad County Hospital during the 1998-2012 period. Proceedings of the 18th World Congress on Controversies in Obstetrics, Gynecology & Infertility, Vienna, 2013, 455-60.