

Analysis of risk factors for oral cavity and oropharynx cancer in the authors' own material

Joanna Nowosielska-Crygiel, Kalina Owczarek, Marzena Bielińska, Magdalena Waclawek, Jurek Olszewski

Klinka Otolaryngologii, Onkologii Laryngologicznej, Audiologii i Foniatrii, Uniwersytetu Medycznego w Łodzi, Kierownik kliniki: prof. dr hab. med. Jurek Olszewski

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ABSTRACT:

Introduction: The aim of the study was to analyse the risk factors for oral cavity and oropharynx cancer in people examined under the Head and Neck Cancer Awareness Week in 2016, Lodz.

Material and methods. In Lodz, 21st September 2016, under the Head and Neck Cancer Awareness Week, 106 people, including 67 women aged 29–77 and 39 men aged 23–84, underwent preventive examinations in the hospital department. Prior to the laryngological examination, the patients were asked to answer questions that referred to their education, medical case history, symptoms, smoking habits with the number of cigarettes per day, alcohol intake, the number of lifetime sexual partners, oral sex engagement, incidents of head and neck cancer in the family history.

Results: The major part of the examined patients were women and men with the secondary and high level of education, 47,76% and 35,82%, and 58,97% and 35,91% respectively. The patients were informed by mass media about the planned preventive medical examinations – 80,60% women and 79,49% men. The most common symptoms reported by women were: hoarse voice in 61,19% cases, dysphagia in 32,84% cases and burning sensation and/or pain in the oral cavity in 29,85% cases. The examined male patients mainly showed hoarse voice (46,15%), other symptoms (43,59%) and dysphagia (25,64%). 28,35% women and 28,20% men smoked cigarettes, while passive smokers were 22,38% and 25,64% respectively. Alcohol consumption was reported by 67,16% women and 82,05% men, rather occasionally. Having oral sex was noted in 25,37% women and 38,46% men, mostly with multiple sexual partners. Among the studied patients, 13,43% women and 5,12% men suffered from malignant cancer, including 2,98% women and 2,56% men who reported head and neck carcinoma in the medical interview. On the basis of the interview and ENT examination, 11,94% women and 17,94% men were qualified for the extended oncological diagnostics.

Conclusion. The Fourth Head and Neck Cancer Awareness Week shows the increased interest in preventive screening, especially oncological screening, and thus the necessity of such preventive activities in the future.

KEYWORDS:

risk factors, oral cavity, oropharynx cancer

INTRODUCTION

Head and neck cancer is a malignant neoplasm that might develop in all head and neck organs, except for the central nervous system, including predominantly lips, floor of the mouth, tongue, tonsils, pharynx, larynx, nasal cavity, paranasal sinuses, thyroid, head and neck skin. This is the sixth most common type of cancer in Poland. The statistics show that head and neck cancer was diagnosed in almost 11,000

people in 2013, while in the same year, 6,000 died due to this disease (more than two times more than the yearly death rate due to traffic accidents).

At the time of diagnosis, in 60% of patients the disease is at an advanced stage and 60% of them die within 5 years.

With diagnosis at an early stage, the survival rate reaches even 80–90%.

In Poland, similar to other European countries, a new trend has been observed called the 'epidemiological phenomenon', i.e. increasing incidence of head and neck cancer in people aged <40 who have never smoked or abused alcohol. This group is referred to as young adults. Studies show that a potential risk factor in this group is human papilloma virus infection.

Head and neck cancer occurrence is closely associated with lifestyle and environmental factors. It is a neoplasm with a confirmed exogenic origin – i.e. caused by carcinogens such as tobacco smoke, oncogenic viruses and strong alcohols. Genetic predisposition is often indicated as an endogenic risk factor. For this reason, the etiology of head and neck cancer remains polygenic [1,2,3].

More than 90% of patients report long history of smoking; additionally, consumption of strong alcohols intensifies the carcinogenic effect of tobacco. Those are the two most common risk factors, which significantly increase risk of developing cancer when combined. In the literature, use of other drugs is reported, such as betel (an Asian plant), which is considered the fourth most common drug in the world, following caffeine, tobacco and alcohol. Usually mixed with tobacco, it contributes to development of oral cancer, which is often preceded by precancerous conditions, such as leukoplakia, erythroplakia and oral submucous fibrosis. In the countries with high consumption of yerba mate, an increased incidence of head and neck cancer was observed. It may be associated with concurrent consumption of alcohol, smoking and drinking hot or very hot mate, i.e. with thermal injury of tissues [4,5,6].

The aim of this study was to analyze risk factors for oral cavity and oropharyngeal cancer in patients under a one-week prevention program in Łódź in 2016.

MATERIALS AND METHODS

As part of the program for prevention of head and neck cancer in Łódź, September 21, 2016, 242 people presented for examination to the Department of Otolaryngology, Oncologic Laryngology, Audiology and Phoniatrics of the WAM University Hospital – Central Veteran Hospital in Łódź, Department of Otolaryngology and Laryngological Oncology of the Barlicki University Hospital in Łódź, Department of Head and Neck Cancer Surgery of Copernicus Provincial Specialized Hospital in Łódź, Department of Otolaryngology of Pirogov Provincial Specialized Hospital in Łódź, from whom 106 people were included in the final analysis and examined at the Department of Otolaryngology, Laryngological Oncology, Audiology and Phoniatrics of the WAM University Hospital, the group con-

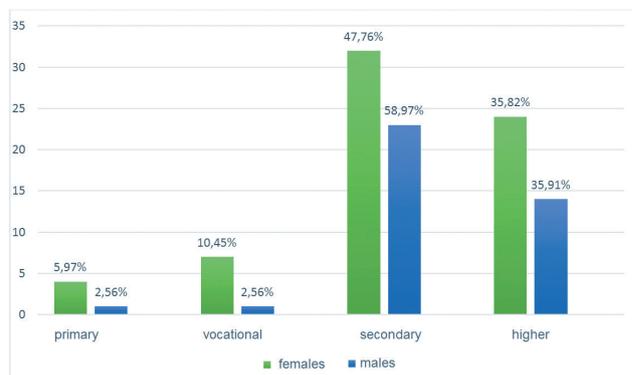


Fig. 1. Summary of patients in relation to education.

Tab. I. Summary of patients in relation to type of work

	INTELLECTUAL		PHYSICAL		UNEMPLOYED	
	N	%	N	%	N	%
Females	30	44.78	7	10.45	30	44.78
Males	16	41.03	11	28.21	12	30.77
All	46	43.39	18	16.98	42	39.62

sisting of 67 females aged 29-77 (56.1 on average) and 39 males aged 23-84 (55.8 on average).

Before the laryngological examination, the patients were asked to fill out a questionnaire regarding their education, how they found out about the program, symptoms, smoking, number of cigarettes daily, consumption of alcohol, frequency of dentist visits, oral hygiene, number of sexual partners, oral sex, number of sexual partners involved in oral sex, family history of head and neck cancer. The obtained data were statistically analyzed.

RESULTS

The analysis showed that the examined women were mostly aged 50-60 and 60-70, 17 (25.37%) and 28 (41.79%) respectively, however, in males, people in the age groups of 50-60, 60-70 and 70-80 predominated – 8 (20.51%), 6 (15.38%) and 10 (25.64%) respectively. In females, most patients had secondary (32 - 47.76%) or higher (24 - 35.82%) education degrees, similar to males – 23 (58.97%) and 14 (35.91%), respectively (Fig.1).

In females, the most common type of occupation was intellectual work ('white-collar job') in 30 cases (44.78%), while 30 (44.78%) women were unemployed; in males, intellectual work was also predominant (16 - 41.03%), while 12 (30.77%) of them were unemployed, due to incorporation of pensioners (Table 1)

Both men (54 - 80.60%) and women (31 - 79.49%) found out about the program from media (Fig.2).

The most common symptoms reported by females (Table 2) included: hoarseness in 41 (61.19%) cases, dysphagia – 22 (32.84%), burning / pain in the oral cavity – 20 (29.85%), while males reported: hoarseness in 18(46.15%) cases, other symptoms – 17 (43.59%), dysphagia in 10 (25.64%) cases.

The survey indicated that women visit their dentist (Tab.3) once a year or every 6 months in 28 (41.79%) and 25 (37.31%) cases respectively, while men visited their dentists every 6 months or once a year in 19 (48.72%) and 11 (28.21%) cases respectively.

Considering products for oral hygiene, women used mainly (Tab.4): mouthwash (44-65.67%) and dental floss (26 - 38.81%), similar to men – 23 (58.97%) and 10 (25.64%) cases respectively.

As for oral symptoms, females reported (Fig.3): gingival bleeding while brushing teeth – 36 (53.70%) individuals, dryness of mouth – 32 (47.80%) and bad breath – 24 (35.80%), similar to males who reported those symptoms in 14 (35.90%), 12 (30.80%) and 15 (38.50%) cases respectively.

Removable dentures were used by 32 (47.76%) women and 23 (58.97%) men. Smoking was reported by (28.35%) women and 11 (28.20%) men, while passive smoking - by 15 (22.38%) women and 10 (25.64%) men.

In smoking females (Fig.4), 8 (11.94%) smoked 1-5 cigarettes a day, 5 (7.46%) – 11-15, 4 (5.97%) – more than 16, 2 (2.99%) – 6-10, while in males – 4 (10.26%), 3 (7.69%), 3 (7.69%) and 1 (2.56%) respectively.

Alcohol was consumed by 45 (67.16%) women and 32 (82.05%) men. Most women (39 - 58.20%) and men (25 - 64.10%) drank alcohol occasionally.

Oral sex was practiced by 17 (25.37%) women and 15 (38.46%) men, women having 1-3 partners in 13 (19.40%) cases, 4-7 partners – 4 (5.97%), and men having 1-3 partners in 9 (23.08%) cases, 4-7 partners – 3 (7.69%), more than 7 partners – 3 (7.69%) (Fig.5).

Family history was positive for cancer in 43 (64.17%) women and 17 (43.58%) men, and specifically for head and neck cancer in 8 (11.64%) women and 9 (23.07%)men.

Nine (13.43%) women and 2 (5.12%) men reported history of head and neck cancer.

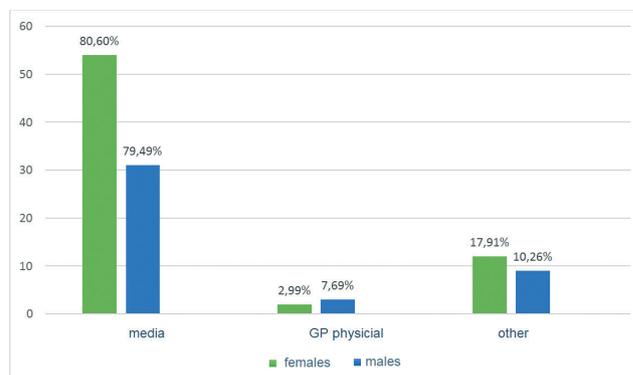


Fig. 2. Summary of patients in relation to source of information about prevention program.

Tab. II. Summary of patients in relation to general symptoms

	HOARSENESS		DYSPHAGIA		BURNING / PAIN IN MOUTH		OTHER	
	N	%	N	%	N	%	N	%
Females	41	61,19	22	32,84	20	29,85	19	28,36
Males	18	46,15	10	25,64	6	15,38	17	43,59
All	59	55,66	32	30,19	26	24,53	36	33,96

Tab. III. Summary of patients in relation to frequency of dental visits

	EVERY 6 MONTHS		ONCE A YEAR		LESS THAN ONCE A YEAR	
	N	%	N	%	N	%
Females	25	37,31	28	41,79	14	20,90
Males	19	48,72	11	28,21	9	23,08
All	44	41,51	39	36,79	23	21,70

Tab. IV. Summary of patients in relation to oral hygiene product used

	DENTAL FLOSS		WATER IRRIGATION		INTERDENTAL BRUSH		MOUTHWASH	
	N	%	N	%	N	%	N	%
Females	26	38,81	1	1,49	17	25,37	44	65,67
Males	10	25,64	1	2,56	6	15,38	23	58,97
All	36	33,96	2	1,89	23	21,70	67	63,21

Based on history and otolaryngological examination, 8 (11.94%) women and 7 (17.94%) men were qualified for extended diagnosis.

DISCUSSION

The originator of the Polish edition of the European Head and Neck Cancer Awareness Week is Prof. Wojciech Golusiński, M.D., Ph.D., the Director of the Department of Head and Neck Surgery and Laryngological Oncology of the Provincial Oncology Center in Poznań. Professor is the founder of the National Program for Prevention of Head and Neck Cancer. The European Head and Neck Cancer Awareness Week is operating under the international campaign Make Sense, which was commenced and carried out by the European Head and Neck Society in close collaboration with medical organizations and patients.

In Łódź, one week operation of the 4th program for prevention of head and neck cancer took place 19-23 September, 2016. 242 people showed for examination, from which 106 to the Department of Otolaryngology, Laryngological Oncology, Audiology and Phoniatics of the WAM University Hospital – Central Veteran Hospital in Łódź.

Patients were mostly aged 50-70, both females and males (67.16% and 35.89% respectively). In most cases, both women and men had secondary (47.76%, 58.97%) or higher education (35.82%, 35.91%). Both women and men knew about prevention program from media, 80.60% and 79.49% respectively. The most common symptoms reported by females included: hoarseness in 61.19% of cases, dysphagia – 32.84%, burning/pain in the oral cavity – 29.85%, while males reported: hoarseness in 46.15% of cases, other symptoms – 43.59%, dysphagia – 25.64%. Considering oral hygiene, women used mainly: mouthwash in 65.67% of cases and dental floss – 38.81%, similar to men – 58.97% and 25.64% respectively. The most commonly reported oral symptoms reported by both women and men included: gingival bleeding while brushing teeth, dryness of the mouth, bad breath, which can be partly attributed to atrophy of oral mucosa and age. However, smoking was reported by 28.35% females and 28.20% males, while 22.38% of females and 25.64% of males were passive smokers. Alcohol was consumed by 67.16% of women and 82.05% of men, mostly occasionally. Oral sex was practiced by 25.37% of women and 38.46% of men, usually with multiple partners. There were 13.43% of women and 5.12% of men who had been diagnosed with cancer, including 2.98% of women and 2.56% of men with positive history for head and neck cancer. Based on history and otolaryngological

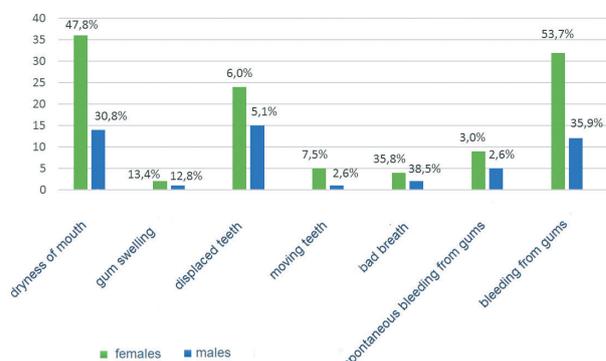


Fig. 3. Summary of patients in relation to reported oral symptoms

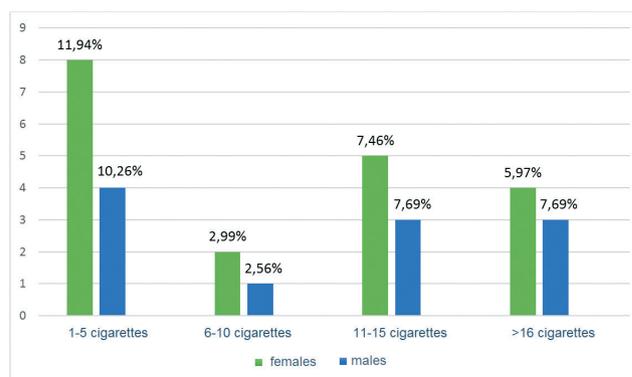


Fig. 4. Summary of patients in relation to number of cigarettes.

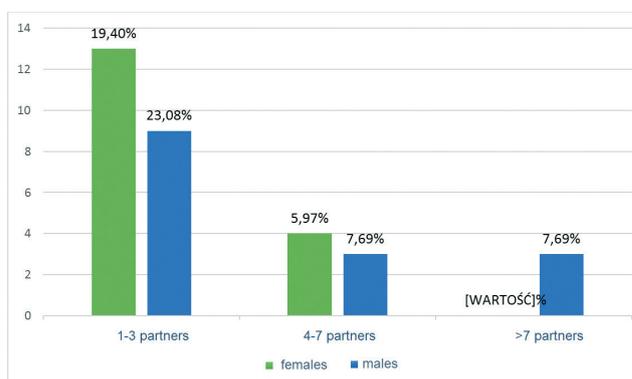


Fig. 5. Summary of patients in relation to number of partners involved in oral sex.

examination, 11.94% of females and 17.94% of males were qualified for oncologic diagnosis – further studies were planned including videostroboscopy, neck ultrasound with fine-needle aspiration, computed tomography of the neck and HPV test.

In the previous study [7], the analysis showed that people who presented for preventive examination were aged 51-60 or more than 60, 71.2% of women and 57.9% of men respectively, i.e. at the age that predisposes for oral cavity and oropharyngeal cancer. In that study, smoking was reported by 15.9% of women and 23.6% of men, most of them smoked 10 to 20 cigarettes a day. More women (40.9%) than men (10.5%) drank alcohol. Both women and men usually reported 1-3 sexual partners (78.9% and 60.5% respectively), however, oral sex was practiced by 45.5% of women and 60.5% of men. After full laryngological examination, considering risk factors for oral and oropharyngeal cancer, 14.4% of patients were qualified for oncologic diagnosis.

In Poland, similar to other European countries, a new phenomenon has been observed called the 'epidemiological phenomenon', i.e. increasing incidence of head and neck cancer in individuals younger than 40 who have never smoked or abused alcohol. This group is referred to as young adults. Research suggests that a potential risk factor in this group is human papilloma virus infection, which is only partly consistent with our results.

In recent years, HPV infection has become more important in the context of head and neck cancer development. It is observed in younger age groups. It is also associated with a changing, often high-risk sexual behaviors. It is currently the most commonly sexually transmitted virus. HPV-related tumors occur in the oropharynx, specifically at the base of tongue and palatine tonsils. Another virus involved in head and neck cancer development is Epstein-Barr virus, which is found in 70-90% of patients with nasopharyngeal cancer [8,9].

Other risk factors include improper diet and nutrition, i.e. lack of vegetables, fruits and vitamins. Studies are being conducted on analyzing micro- and macronutrients present in food and their potential protective effect against head and neck cancer. The following are usually mentioned: vitamin A (retinol), vitamin C (AA), vitamin E (alpha-tocopherol), carotenoids (beta-carotene), potassium, selenium. Those are antioxidants and are important for elimination of free radicals in the organism that can cause DNA mutation, change in enzyme activity and

peroxidation of cell membrane lipids. Also, consumption of large amounts of preserved and salted food, as well as fermented dietary products, is considered a cause of developing head and neck cancer. The rule states, the less modified the food, the healthier and safer for the organism it is [5,10].

Risk factors include: poor oral hygiene, mechanical irritation of mucosa (dentures), chronic fungal infection, immunodeficiency, UV radiation (particularly UVB), which contributes to development of lip cancer. Occupational exposure should always be born in mind, which affects e.g. workers at nickel or chromium ores, sawmill or carpentry shop (due to inhalation of sawdust), who can develop paranasal adenocarcinoma [5].

It should be emphasized that up to now, no strategy of screening for HPV infection has been developed, of both reproductive organs and oral cavity [11]. In Poland, two vaccines are available: bivalent (Cervarix) against two strains of the virus (HPV-16 and 18) and quadrivalent (Gardasil) – against 4 strains of virus (HPV-16, 18, 6 and 11).

The efficacy of vaccination of girls prior to sexual initiation in prevention of cervical cancer associated with HPV-16 and 18 infection is more than 90% [12].

Positive outcomes of vaccination of young women in prevention of HPV-related oral and oropharyngeal cancer are indicated by Herrero et al. [13].

CONCLUSIONS

- The week for prevention of head and neck cancer that has been organized for the fourth time in Łódź indicates increasing interest of the society in prevention programs, especially oncologic ones, and hence the need for its continuation.
- Based on history and otolaryngological examination, 11.94% of females and 17.94% of males were qualified for extended diagnosis.
- In patients at high risk of oral and oropharyngeal cancer, HPV testing should be conducted.

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Corresponding author: Jurek Olszewski: Klinika Otolaryngologii, Onkologii Laryngologicznej, Audiologii i Foniatrii, Uniwersytetu Medycznego w Łodzi, ul. Żeromskiego 113, 90-549 Łódź; Tel./fax: (42) 639 35 81; e-mail: jurek.olszewski@umed.lodz.pl

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