Statistical Data on Patients with Prostate Cancer on the Territory of Prilep, North Macedonia, from the Period 2014-2019

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Abstract

Prostate cancer is a common phenomenon among the male population in the world and often, it is a leading cause of death. From a pathohistological aspect, it is an adenocarcinoma which most often occurs in people over the age of 50. In this research is presented the occurrence of prostate cancer in the municipality of Prilep in terms of number and age of patients in the period from 2014 to 2019. This research was conducted at the Center for Public Health in Prilep. The research is based on the period from 01.01.2014 to 31.12.2019, during which a total of 228 patients were registered. According to the data received from the Center for Public Health - Prilep, it can be concluded that the most diagnosed patients are in the period from 01.01.2014 to 31.12.2014. While according to age in the period from 2014 to 2019 the most common age group with prostate cancer are the patients between 65-74 years, then over 75 years, while the least diagnosed patients are aged 45-64 years. The purpose of this research is to determine the number of patients with prostate cancer in relation to the age of the patients, in order to give adequate and therapeutic care, which will aim to improve the treatment and prevention of prostate cancer.

Keywords – cancer, oncology, statistics, prostate

Introduction

The prostate is an exocrine gland that is part of the male reproductive system. It is made up of 50-60 tubular alveolar glands with its own outflow tract, so that the secretion created by these glands becomes part of the ejaculate. Prostate cancer is one of the few pathological conditions that occur in the prostate. Prostate cancer is especially present in men over the age of 65, but the risk of developing this cancer increases beyond the age of 50.

Pathogenetically, the occurrence of this cancer is on two bases: biological and genetic, where androgen hormones, the active metabolite of testosterone, ie dihydrotestosterone, are considered to play a major role, which is considered to be the cause of prostate cancer. Due to binding to androgen receptors in the prostate and stimulation of abnormal growth of prostate cells. This cancer rarely shows any symptoms, so some urologists believe that screening the male population over the age of 50 once a year can lead to early diagnosis and timely treatment of patients.

According to some epidemiological studies that have been done regarding prostate cancer, they have found that certain genetic changes and the occurrence of prostate cancer in a family increase the possibility of its occurrence in one of the heirs. According to these researches, in 5-10% of the patients there is a positive family history, which with the presence of prostate cancer in a brother or father increases 2-3 times the possibility of its occurrence in other members of the family. The risk of prostate cancer increases in men who have a family history of breast or ovarian cancer, which in turn is associated with mutations in the BRCA1 and BRCA2 genes.

Prostate cancer is rare in young people, but the risk increases with age, especially the risk increases enormously in people after the age of 50. This cancer is rare before the age of 45, while three-quarters of its occurrence occurs in men over the age of 65.

Regional and national variations have shown that prostate cancer varies in certain ethnic communities. African Americans have the highest, while in Asia the incidence is the lowest. People of black descent not only have the highest incidence of the disease, but they also have a more aggressive and severe course of the disease. Differences between ethnic communities can be caused by differences in the gene alleles responsible for the enzymes involved in testosterone metabolism, as well as the risk of being influenced by the external environment and different lifestyles that are different for all ethnicities.

There is strong evidence that androgen hormones play a role in the development of prostate cancer, as this cancer is not found in eunuchs and in people castrated before puberty. A series of environmental studies have also been conducted that have found a correlation between testosterone, especially dihydrotestosterone, in African Americans, Japanese and whites. Although many studies based on serum testosterone concentrations have not been consistent, some have shown an association between dihydrotestosterone, an active metabolite of testosterone, and the incidence of cancer.

Some studies have found that obese people have a higher risk of more advanced and severe prostate cancer. Excessive alcohol consumption can be expected to affect hormone metabolism. Also cigarette smoking could play a biological role in carcinogenesis by ingesting certain carcinogenic metabolites present in smoke or by acting on hormones. Elevated cholesterol levels above 5.1 mmol / L are associated with an increased risk of prostate cancer because androgens in the human body are synthesized from cholesterol. Examination of wood-derived dust has led to striking conclusions that prostate cancer is common in woodworkers or exposed to wood dust. Also employed are people employed in thermal power plants, fire stations and railway stations due to exposure to polycyclic aromatic hydrocarbons.

Symptoms are usually associated with urinary obstruction such as difficulty urinating, thin urine stream, urgency and frequent urination followed by hematospermia or blood in the semen, hypospermia due to blockage of the ejaculatory ducts and if metastatic it is most often in the bones causing pain, weight loss, anemia and paraplegia. [1-10]

Material and methods

Statistical analysis of data for patients with prostate cancer in the period from 2014 to 2019was used as a method. The data are taken from Center for Public Health – Prilep. The data are presented in tabular and graphical presentation.

Result and discussion

The total number of registered patients was 228, of which 5 patients were diagnosed at the age of 45-54 years, 40 patients were diagnosed at the age of 55-64 years, 103 patients were diagnosed at the age of 65-74 years and 80 patients were diagnosed with over 75 years of age.

Table 1. Display of distribution of prostate cancer in accordance with the age diagnosed in patients on the territory of municipality of Prilep in the period from 2014 to 2019

Year	45-54	55-64	65-74	75+	Total
2014	2	5	29	18	54
2015	2	7	16	15	40
2016	1	8	18	13	40
2017		5	10	12	27
2018		6	15	16	37
2019		9	15	6	30
Total	5	40	103	80	228
%	2.2%	17.5%	45.1%	35.2%	100%

Based on the data obtained for prostate cancer from the Center for Public Health - Prilep, shown in table 1 for the period of 5 years 2014-2019, it can be noted that the total number of patients is 228 people. The highest number of patients is in 2014, 54 patients, and the lowest in 2017, 27 patients.
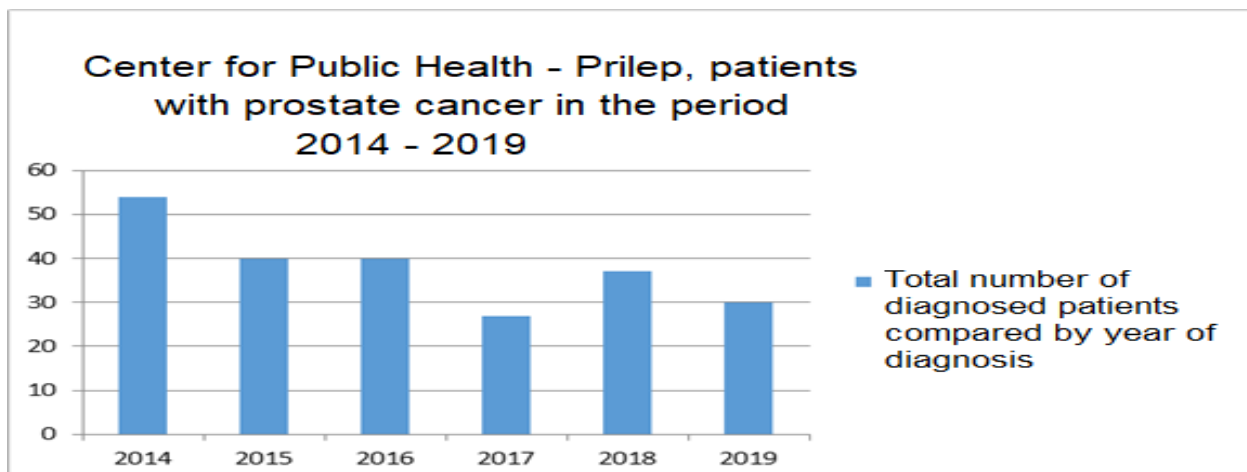
Chart 1.Graphic display of total number of diagnosed patients in accordance with the age when the prostate cancer was diagnosed on the territory of municipality of Prilep in the time period from 01.01.2014 to 31.12.2019
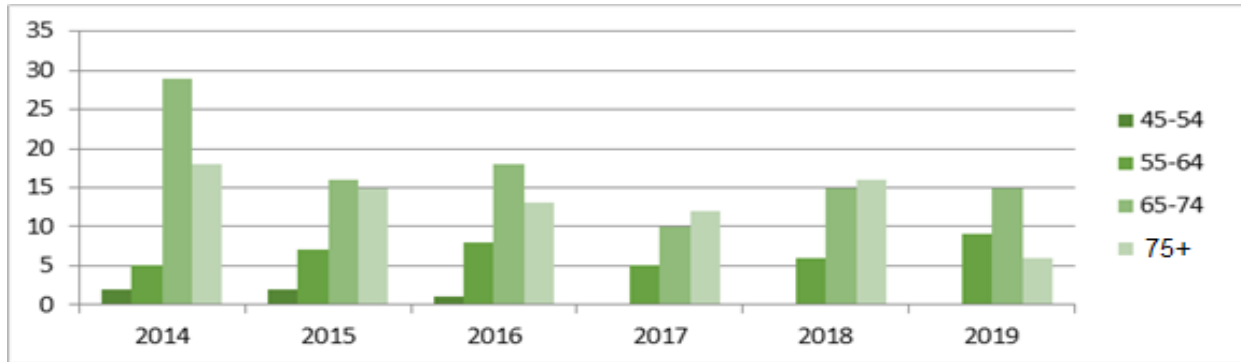

Chart 2.Graphic display of total number of diagnosed patients according to the age and the year of diagnose on the territory of municipality of Prilep in the time period from 01.01.2014 to 31.12.2019
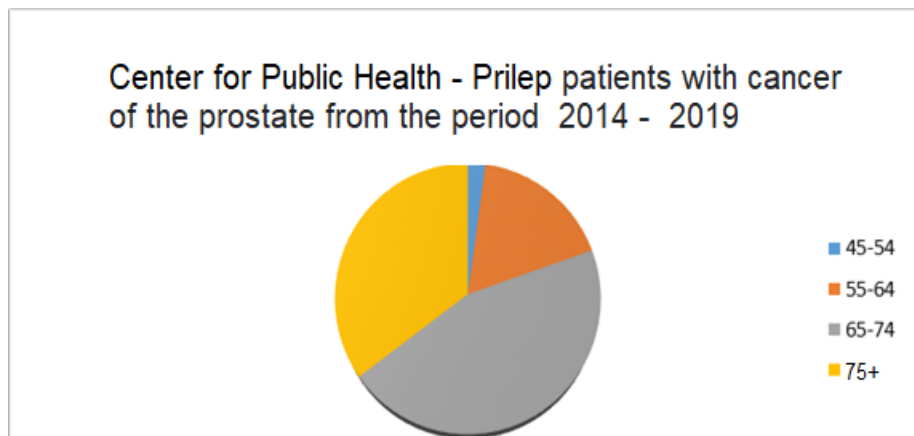

Chart3. Percentage graph of age when the prostate cancer appeared on the territory of municipality of Prilep in the time period 2014-2019

From the graphic presentation in chart 1, it can be seen that the total number of diagnosed patients with prostate cancer in the period 2014-2019 in the municipality of Prilep is 228, according to the year of diagnosis in 2014, 54 patients, in 2015 and 2016 40 patients each, in 2017, 27 patients, in 2018, 37 and in 2019, 30 patients. Thus, it can be noticed that the largest number of diagnosed patients is in 2014, then the number in 2015, 2016 and 2017 decreases, so in 2018 there is a slight increase in the number of newly diagnosed patients, while in 2019 we record a decrease in the number of newly diagnosed prostate cancer patients.

From the graphic representation of chart 2, it can be seen that prostate cancer in the period 2014-2019 in patients aged 45-54 is the least represented by only 5 patients, two in 2014 and 2015 and only one diagnosed patient in 2016, while in the remaining years of interest in this study there are no patients diagnosed with prostate cancer at this age or a percentage of only 2.2% which can be seen in chart 3

From 55-64 years, 40 patients were diagnosed, 5 in 2014 and 2017, 7 in 2015, 8 in 2016, 6 in 2018 and 9 patients in 2019 or a percentage of 17.5% shown in Figure 3 From 65-74, a total of 103 patients were diagnosed or 45.1% shown in Figure 3, which can be concluded that most of the patients diagnosed with prostate cancer belong to this age group. According to the year of diagnosis, the distribution of prostate cancer at this age is: 29 in 2014, 16 in 2015, 18 in 2016, 10 in 2017 and 15 in 2018 and 2019. In persons over 75 years of age in the period 2014-2019, 80 patients were diagnosed with prostate cancer or 35.2% (Chart3) or the second most common age group after that between 65-74 years of age. According to the year of diagnosis, the distribution is: 18 in 2014, 15 in 2015, 13 in 2016, 12 in 2017, 16 in 2018 and 6 patients in 2019.

Prostate cancer is the second most common cancer in the male population, and the fifth leading cause of death in men worldwide. Prostate cancer can be asymptomatic or often have an inconsistent growth pattern, so active monitoring is needed. The incidence and prevalence of prostate cancer are closely related to the age of patients, especially in people over 65 years of age. The incidence in African Americans is higher than in the other ethnical groups, due to changes in gene alleles and lifestyle itself. To reduce the risk, it is necessary to eliminate excessive consumption of fast food and replace it with a large amount of fruits and vegetables.

Prostate cancer is the second most common cancer in the male population in the world, after lung cancer. It is a global health problem, due to the high incidence and large number of newly diagnosed and deceased patients globally. In 2018, about 358 000 patients died as a result of prostate cancer, which is 3.8% of all causes of death in the male population, while in 2020 the mortality was the same 3.8%, but in 2020 about 375 thousand died patients diagnosed with prostate cancer. Differences in the numbers of newly diagnosed prostate cancer patients between different countries are still not well understood, as the reason is the screening and different views of the annual urological examination supplemented by PSA and PAP examinations of patients. According to these differences, the differences can be seen in the numbers of prostate cancer patients on different continents. For example, in 2018, 450 000 new cases of prostate cancer were diagnosed in Europe, which represented 24% of all cancers that year. While in the United States are registered about 160 thousand or 9.8%. [1-10]

Conclusion

In men over the age of 65, the incidence of cancer increases by 60%. Mortality per year due to prostate cancer is about 10.7 per 100 thousand inhabitants. According to these parameters stated for the possibility of occurrence and mortality of patients, every man over the age of 50 should have a prostate examination once a year. Above all, a detailed urological examination is required, ie digital rectal examination, trans-rectal ultrasonography supplemented with laboratory

examination, ie examination of prostate specific antigen (PSA) and prostatic alkaline phosphatase (PAP). Screening is of great importance in detecting early prostate cancers that are still controllable. Annual examination prevents the development of severe forms of cancer and on-time detection, so there might be a greater possibility for its timely treatment and for prolonging the life of patients.

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