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**Retrospective Analysis of Malignant Neoplasms of the Liver at the Level of the Republic of North Macedonia and the Municipalities of Radovis, Stip and Probistip in the Period 2007-2018**

Jihe Zhu<sup>1</sup>, Blagica Arsovska<sup>1,2</sup>, Kristina Kozovska<sup>1,3</sup>

<sup>1</sup> Faculty of Medical Sciences, University GoceDelchev, Shtip, Republic of Macedonia;

<sup>2</sup> Institute of Biology, Faculty of Natural Sciences and Mathematics, Skopje, Republic of Macedonia

<sup>3</sup> Medicine Faculty, St. Cyril and Methodius University of Skopje, Republic of Macedonia

**Abstract**

When it comes to malignant neoplasms of the liver, their overall division is primary and secondary. Primary ones are those tumors that originate from liver tissue itself, and secondary are tumors that originate from another organ and have metastases present in the liver. Every year there are around 360 people diagnosed with a primary liver tumor, and it is more common in men and more common in the age group of over 65. The method used for the purposes of this thesis is a retrospective analysis of the data obtained from the State Statistical Office of the Republic of Northern Macedonia and outpatient polyclinic morbidities. The paper analyzes the total number of patients in Radovis, Stip and Probistip in 2007 and 2018 and deceased patients at the level of the Republic of Northern Macedonia in 2007 and 2017. In comparison of the number of deaths in 2007 and with those in 2017 it can be concluded that the number of deaths has decreased from 207 to 143 or 64 patients. This is thanks to the development and widespread use of imaging methods such as UC,CT and MRI used to detect the disease in the earlier phase. Mortality has also been reduced due to the modern the rapeutic approach which provide greater survival.

**Keywords** – analysis, liver, cancer, neoplasms, oncology

**I. Introduction**

Hepatocellular carcinoma is ranked eighth as the most common cancer in the world and the most common primary liver cancer and third in cancer mortality.

When it comes to malignant neoplasms of the liver, their overall division is primary and secondary. Primary ones are those tumors that originate from liver tissue itself, and secondary are tumors that originate from another organ and have metastases present in the liver. Every year there are around 360 people diagnosed with a primary liver tumor, and it is more common in men and more common in the age group of over 65.

The etiology is not known with certainty but high risk factors are patients with hepatitis B or C infection, alcohol consumption, cirrhosis of the liver and others.

Further in the clinical picture, usually in the early stages of both primary and secondary malignant tumors, patients are usually asymptomatic. They usually appear when the tumor has progressed and have: weakness, fatigue, pain in the upper abdomen usually below the right rib cage, weight loss, hysteretic syndrome, loss of appetite, abdominal swelling, elevated body temperature and etc.

For diagnosis is used: laboratory tests, imaging methods (UC, RTG, CT, MRI), PET scan and biopsy for definitive diagnosis where a sample for patho-histological analysis is taken.

Staging determines how widespread the tumor is and what is the most appropriate therapeutic approach. Stage and therapy also provide a survival prognosis but no physician can predict exactly how long a patient will live.

From the therapy options, there is a surgical intervention (resection) that is most commonly used for primary liver cancer. The secondary liver cancer is resected only when it is spread throughout the liver or to other parts of the body. Other treatments include: radiofrequency ablation (PSA), alcohol injection, cryotherapy, endoscopic palliation, hemoembolization and other. [1-6]

**II. Material and methods**

The method used for the purposes of this thesis is a retrospective analysis of the data obtained from the State Statistical Office of the Republic of Northern Macedonia and outpatient polyclinic morbidities.

The materials are extracted from the State Statistical Office of the Republic of Northern Macedonia and from the Hygiene-Epidemiological Service in Radovis.

The paper analyzes the total number of patients in Radovis, Stip and Probistip in 2007 and 2018 and deceased patients at the level of the Republic of Northern Macedonia in 2007 and 2017.

**III. Results and discussion**

Table.1. Diseased age groups by gender in 2007

Age	Men	Women
20-24	0	0
25-34	0	0
35-44	0	0
45-54	1	0
55-64	0	3
65-74	1	4
75+	3	1

According to table 1, it can be concluded that the number of patients in the age group of 65-74 is highest. The lowest number of cases is under 44 years. After 44 years it can be concluded that the number of people with the highest peak 65-74 is starting to increase and then this is a result of mortality after 75 years. This corresponds to the fact that in Macedonia the average life expectancy for women is 76.9 and for men it is 74.3

Table.2. Diseased age groups by gender in 2018

Age	Men	Women
20-24	0	0
25-34	0	0
35-44	0	0
45-54	1	0
55-64	0	0
65-74	1	1
75+	2	0

According to table 2 it can be concluded that the number of patients in the age group of 65-74 and 75+ is the highest. The lowest number of cases is under 44 years. After 44 years we can conclude that the number of people with the highest peak 65-74 and 75+ is starting to grow. The comparison between 2007 and 2018 is showing that there is a decrease in the number of patients in Radovis, Stip and Probistip.

Chart 1.Deaths at the level of the Republic of Northern Macedonia in 2007 by gender

**Deaths at the level of the Republic of Northern Macedonia in 2007 by gender**

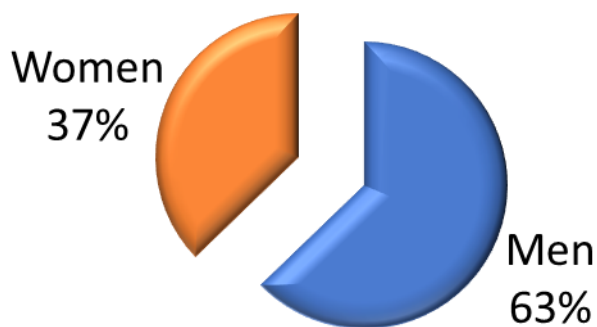


Table.3. Age group of deceased patients by gender in 2007

Age	Men	Women
25-34	0	1
35-44	2	2
45-54	17	8
55-64	24	16
65-74	56	29
75+	31	21

On chart 1 it can be concluded that a higher percentage of deaths nationwide are male, which correlates with that the number of diseased and deaths is 3:1 for males. And according to the table 3 it can be concluded that according to the age group the most deaths are from 65 to 74 years. Then the mortality rate decreases which shows the fact that in Macedonia the average life expectancy for women is 76.9 and for men is 74.3.

Chart 2. Deaths at the level of the Republic of Northern Macedonia in 2017 by gender

**Deaths at the level of the Republic of Northern Macedonia in 2017 by gender**

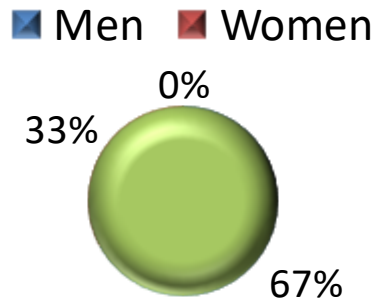


Table 4. Age groups of deceased patients by gender

Age	Men	Women
25-34	0	0
25-44	3	1
45-54	9	5
55-64	25	11
65-74	31	17
75+	28	13

Compared to 2007 we can say that the number of deaths has decreased due to modern diagnostic methods and innovations in the therapeutic approach that prolongs life and the discovers at an early stage.

From the research it can be conclude that the total number of patients in Stip, Radovis and Probistip in 2007 is 13 patients.

Depending on gender, women are more dominant than men.

From the results it can be concluded that in 2007 according to the age group the most affected are men over 75 years and women in the age range 65-74 years. Radovis, Stip, Probistip does not cover a large number of respondents ie the statistics are not large in number, which is one of the limitations of this research, therefore the results of world statistics cannot be refuted.

Compared to 2018, the total number of cases in these three regions is 5 patients. According to this there is a decrease in the number of patients, probably due to the prevention of hepatitis B virus vaccination and the progress in understanding the other etiological factors as well as education in the prevention.

Depending on gender, men dominate over women. Also this year, many cases are not covered so that a more precise conclusion can be drawn which sex is more affected even though according to world statistics the male to female ratio is 3: 1. This ratio is more pronounced in the survey covering deaths at the level of the whole of the Republic of Northern Macedonia where in 2007 we have a total of 207 persons, of which men are 130 persons and women 77 persons, men 63% and females 37%.

In 2017, there are total of 143 deaths, of which 96 are men and 47 are women, 67% are men and 33% are women. As there is a larger group of respondents here, the results of worldwide statistics suggest that malignant liver tumors are more common in men than in women.

#### **IV. Conclusion**

In comparison of the number of deaths in 2007 and with those in 2017 it can be concluded that the number of deaths has decreased from 207 to 143 or 64 patients.

This is thanks to the development and widespread use of imaging methods such as UC,CT and MRI used to detect the disease in the earlier phase.Mortality has also been reduced due to the modern therapeutic approach which provide greater survival.

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