



THE PROSTATE CENTER: MULTIDISCIPLINARITY, ORGANIZATION OF DIAGNOSTIC WORK-UP AND TREATMENT OF PROSTATE CANCER

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SUMMARY – The aim of this paper is to show the results of prostate cancer treatment in Prostate Center of Department of Urology at the University Hospital Center Zagreb. The answer to growing demands for prostate cancer treatment due to increasing incidence is the formation of specialized, multidisciplinary units/centers that deal mainly with prostate cancer. The need was recognized by European School of Oncology and European Association of Urology, who have proposed their concepts of validating such centers with the aim of promoting high-quality prostate cancer treatment. Following these trends, the Department of Urology at the University Hospital Center Zagreb has established the Prostate Center. This new unit offers specialized and individualized approach to work-up, treatment and follow up for prostate cancer patients based on multidisciplinary. The Prostate Center was also established as a platform for education and research.

Key words: *Prostate cancer; Cancer Care Facility; Patient Care Team; Urology; Medical Oncology; Radiation Oncology.*

Introduction

Incidence of prostate cancer has been increasing in Europe during the last decades¹ and it is now the most common cancer diagnosed in men². Despite the increase in incidence, the mortality of prostate cancer has been decreasing in the developed countries of Western Europe³. Croatia's prostate cancer incidence is also following global trends⁴ and, according to the last annual epidemiological report, in 2016 it has become the most commonly diagnosed male cancer in Croatia⁵. On the other hand, prostate cancer mortality has an increasing trend^{3, 4}. The reasons behind that could be socio-economic: the availability of the latest

and most advanced diagnostic and therapeutic tools is reduced in developing countries. These countries are usually a few years behind in following trends that arise in developed countries. While some are tough to follow due to lack of financial abilities, some are merely organizational in nature and thus, easier to implement. Multidisciplinary is the key to successful cancer treatment⁶. Following the results of the European breast cancer units that produced better outcomes in treatment of breast cancer in women, European School of Oncology proposed formation of Prostate Cancer Units (PCU) in 2011⁷. After that, in 2012 a Prostate Cancer Units Initiative in Europe was launched with a gathering of a multi-professional Task Force to set standards for quality comprehensive prostate cancer care and designate care pathways in PCUs⁸. Following these trends and recommendations, in 2016 we have established a new organizational unit called The Pros-

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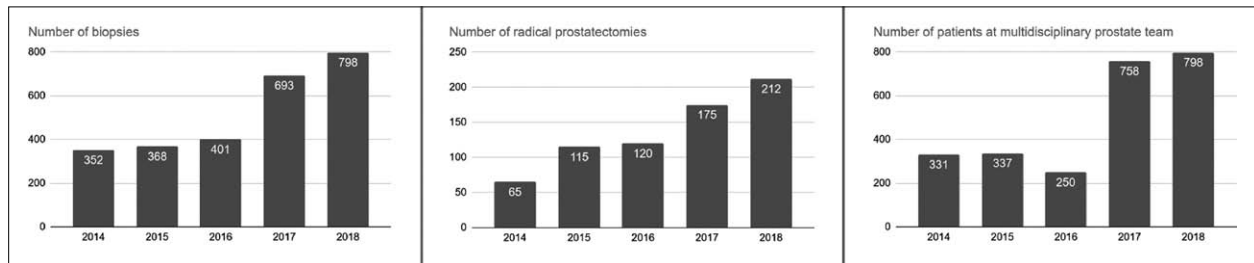


Figure 1. Number of prostate biopsies, radical prostatectomies and patients at multidisciplinary prostate team during the last 5 years.

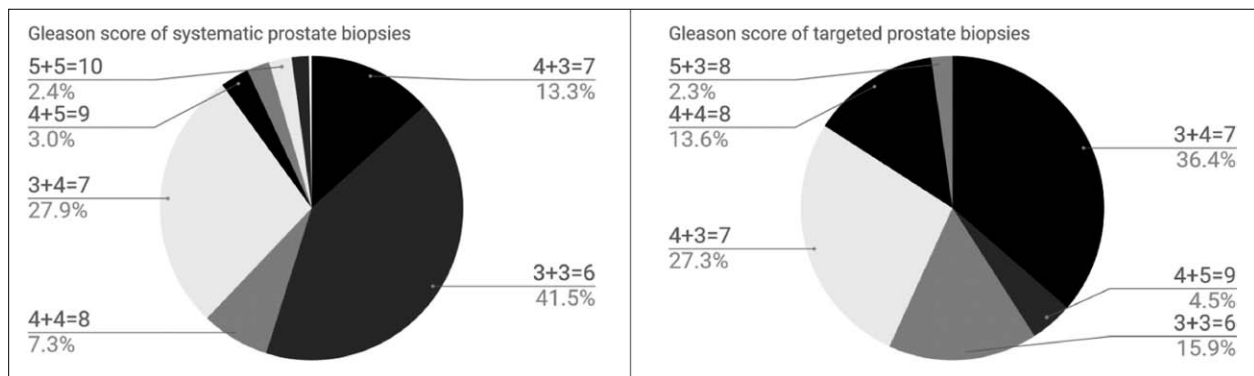


Figure 2. Proportion of Gleason scores for positive systematic and targeted biopsies.

tate Center. The aim was to provide patients with diseases of the prostate – prostate cancer, BPH and prostatitis, a focused and specialized care based on individual approach. Along with basic urologic workup for patients with LUTS, its core functioning unit is multidisciplinary team (MDT) consisting of urologists, medical and radiation oncologists, radiologist and pathologists. Multidisciplinary in cancer care is not new in our hospital since we have a 40-year long tradition of uro-oncological multidisciplinary team. Formation of the Prostate Center gave our team wider public recognition which increased the number of patients. Prostate Center encompasses the most important elements of prostate cancer treatment. Initial work-up is organized as an ambulatory care center where patients get the basic urologic workup with basic laboratory tests and urinalysis, PSA, uroflow, urinary tract ultrasound, and urologic examination. In case of prostate cancer suspicion, prostate biopsy is performed. All biopsies are under the auspices of the Prostate Center, and in case of suspicious MRI finding, a targeted biopsy is performed. Furthermore, once the diagnosis of prostate cancer is made, the decision-

making process of the best treatment modality is given by our multidisciplinary team for all newly diagnosed patients. Besides that, our MDT also plays a vital role during follow up in case of any recurrence and relapse. All patients that are diagnosed with prostate cancer in our institution must be presented to our multidisciplinary team. The added workload are also patients that are referred from other hospitals, usually smaller centers. The aim of this paper is to present the results of prostate cancer treatment in the Prostate Center.

Materials and Methods

A retrospective review of database of patients treated in the Prostate Center was performed. The data from medical history, biopsy, operative protocols and histopathological findings were analyzed. We also performed an analysis of basic demographic, diagnostic and therapeutic data for patients with prostate cancer that were evaluated by our multidisciplinary team during a one-year period in 2018. All the decisions regarding further diagnostic or therapeutic procedures

Table 1. Pathological staging for radical prostatectomies performed in 2018.

<i>T stage</i>	
pT2	79%
pT3a	12%
pT3a	8%
<i>Schwannoma & Phylloides tumor</i>	1%
<i>N stage</i>	
pN0	95%
pN1	5%
<i>Surgical margins</i>	
R0	76%
R1	24%

were divided into groups accordingly. Results are presented using descriptive statistics.

Results

Since the establishment of the Prostate Center in December 2016, there were 2830 examinations which included male patients with LUTS of any cause, but mostly BPH, prostatitis and prostate cancer. Systematic biopsies are performed in the case of prostate cancer suspicion. Targeted biopsies are performed in case of prior negative biopsies and a multiparametric MRI finding of PIRADS ≥ 3 lesion. The number of procedures during the last five years has an increasing trend and is shown in Figure 1. In 2018 there were 731 systematic and 67 targeted prostate biopsies. Overall, prostate cancer was diagnosed in 45,1% of prostate biopsies. In case of patients with PSA for 4-10 ng/ml prostate cancer was diagnosed in 41,7% biopsies. The proportion of positive targeted biopsies is 65,7%. The mean age of patients that undergo prostate biopsy is 67,7 (range 41-90 years of age). The median PSA value is 7,3 ng/ml (range 0,6-1269 ng/ml). The proportion of Gleason scores for positive systematic and targeted biopsies is shown in Figure 2. A more detailed analysis of radical prostatectomies was performed for year 2018 and is presented in Table 1. A more detailed analysis of patients' characteristics and treatment decisions was performed for 2018 and for newly diagnosed patients is shown in Table 2.

Table 2. Proportion of metastatic disease and treatment decision for newly diagnosed patients presented at multidisciplinary prostate team in 2018. (N=459).

<i>Metastatic disease</i>	
Yes	10%
No	90%
<i>Decision</i>	
Radical prostatectomy	37.9%
Radiotherapy	26.6%
Active surveillance	8.1%
Androgen deprivation therapy	7.6%
Further diagnostics	19.8%

Discussion

Formation of the Prostate Center at the Department of Urology at the University Hospital Center Zagreb had a clear effect on the number of prostate cancer cases treated in our hospital. First the number of biopsies has almost doubled, and we started performing targeted biopsies for patients with prior negative biopsies and prostate cancer suspicion. We perform cognitive fusion and our results of 65,7% positive findings are comparable to other series⁹. Recently published results of FUTURE Trial showed that the technique of targeted biopsy doesn't impact the outcomes¹⁰. Even though cognitive fusion has a relatively short learning curve, still it requires a certain volume of patients. Low volume centers are less likely to collect adequate quantity of these procedures to justify routine performance.

Secondly, the number of radical prostatectomies has increased, nearly triple the number of procedures we performed five years ago. That is a direct effect of prostate biopsies increase and the number of patients that come to our multidisciplinary meetings from other hospitals. We have also recently started performing laparoscopic radical prostatectomies with 50 procedures performed from February 2019. This reflects the most significant impact of the Prostate Center: impact on the quality of provided care to our patients. Modern treatment and diagnostic workup of prostate cancer are rapidly progressing every year and it is hard to keep up with ever-changing guidelines. That is why it is of utmost importance to form such specialized centers where patients can be provided with the best of

care. In the last few years a lot of attention was given, and focus directed towards formation of such specialized prostate cancer centers throughout Europe. First Prostate Cancer Units emerged, and a certification process was proposed in order to improve standards of management of prostate cancer⁷. The authors proposed a set of minimum and mandatory requirements revolving around the volume of the center, data collection, core team, additional services personnel, multidisciplinary approach, availability of treatment options, organizational details and equipment. A project was established that aims to develop the concept of “European Prostate Cancer Centers of Excellence” (EPPCE)¹¹. These require four distinct steps for defining such a center of excellence: clinical step, research step, educational step and quality assurance/control procedures. The importance of Prostate Cancer Units is also related to a need for smaller, less equipped and staffed hospitals which do not have the men power to provide patients with state-of-the-art prostate cancer care. It is their need for referral of such patients to Prostate Cancer Units that also justifies their formation. In order to treat patients better, there is a need to follow-up on results of treatment, data management and analysis. Database buildup is paramount for quality assessment. Such centers must provide a broad spectrum of available diagnostic procedures including PET CT with PSMA, multiparametric MRI, fusion biopsies, etc. They must be able to provide a broad spectrum of treatment options including all forms of surgical management, radiotherapy, chemotherapy and androgen deprivation therapy. Multimodality is the key to the best individualized treatment of prostate cancer patients. We must not forget the importance of such centers in education and research. With the establishment of a good prostate cancer patients’ database, regular follow-up and analysis of treatment results, they can form their own protocols and share experience through education of other urological and oncological specialists, residents and other medical personnel included in the care for prostate cancer patients. Fulfilling the requirements is a plan for the future of the Prostate Center.

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Sažetak

CENTAR ZA PROSTATU: MULTIDISCIPLINARNOST, ORGANIZACIJA DIJAGNOSTIKE
I LIJEČENJA RAKA PROSTATE

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Cilj ovog rada je prikazati rezultate liječenja pacijenata oboljelih od raka prostate u Centru za prostatu Klinike za urologiju Kliničkog bolničkog centra Zagreb. U svijetu i Hrvatskoj incidencija raka prostate je u porastu zbog čega se javlja povećana potreba za liječenjem takvih pacijenata. Temeljem tih trendova započelo je stvaranje specijaliziranih, multidisciplinarnih timova koji se bave isključivo ovom bolešću. Europska škola onkologije i Europsko urološko društvo prepoznali su važnost tog koncepta te su ubrzo predstavili svoje kriterije vrednovanja i akreditiranja takvih centara kako bi se potaknulo podizanje kvalitete liječenja pacijenata s rakom prostate. Klinika za urologiju Kliničkog bolničkog centra Zagreb je, potaknuta ovim trendovima, oformila Centar za prostatu koji pacijentima s rakom prostate nudi specijalizirani i individualizirani pristup dijagnostici, liječenju i praćenju utemeljen na multidisciplinarnosti. Centar za prostatu je također osmišljen i kao platforma za edukaciju i znanstvena istraživanja.

Ključne riječi: *Rak prostate; Jedinica za liječenje raka; Tímsko liječenje bolesnika; Urologija; Internistička onkologija; Radijacijska onkologija*