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Qualitative Approach and Treatment of Patients with Prostate Cancer in Cantonal Hospital Bihac During Two Years Period

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ABSTRACT

Introduction: Prostate cancer is an important cause of morbidity and mortality in human pathology. In recent years there has been an increase in the number of new cases. **Material and Methods:** In this article, we want to show the number of patients diagnosed and treated due to prostate cancer in the Cantonal Hospital Bihac, Bosnia and Herzegovina, over a two year period. After examining the medical records, we selected 70 patients diagnosed with prostate cancer. Average age was 70.9 years (51-91 years). The total PSA ranged from 1.6 to 3332 ng/ml. For each patient is determined the PSA ratio f/t PSA, with an average value of 0.13 (0.02 to 0.627). **Results:** From the data analysis, we concluded that nearly half of the patients (30 patients), came to the urology clinic with advanced disease. The stage of the disease is well correlated with PSA value. **Conclusion:** The PSA can be considered as a reliable marker in the diagnosis and treatment of prostate cancer. Regardless of the current controversy on the issue of screening on prostate cancer using the PSA analysis, we believe that the use of this simple test in selected populations is justified for the purpose of early disease detection.
Keywords: Prostate cancer, PSA.

1. INTRODUCTION

Prostate cancer is an important cause of morbidity and mortality in human pathology. In recent years, in the Western countries is increasing the number of people affected by this disease, which can be partly explained by the longer lifetime of patients, application of modern methods of screening and better health education.

However, the incidence and mortality of this disease also suggest the influence of other factors. The incidence of prostate cancer shows large variations from 130/100,000 (African-American population in the United States) to less than 10/100,000 men annually (Far East) (1). The total population of the Una-Sana Canton is about 300,000, and the ratio of men to women is 50:50, so therefore the incidence of prostate cancer in our canton is around 23/100,000 men annually.

According to the literature, the obviously largest number of patients is in the age group from 65-75 years (2). The true prevalence of prostate cancer is difficult to determine, but it can be said that it is in third place by occurrence in men. Accordingly, variations in terms of incidence, and mortality from this disease varies from high (U.S.) to a low in the countries of the Far East, as indicated by earlier statistical analyses (3).

Contemporary findings suggest a multifactorial etiology of prostate cancer. Generally speaking, cancer is a disease caused due to genetic (or inherited) mutations, in conjunction with other factors, in the framework of complex and poorly understood mechanisms. It is known that some of these mechanisms are relevant to carcinogenesis: a) Activation of oncogenes; b) Suppression of tumor growth by inhibitor gene; c) To cancer development also contributes the impact of risk factors.

Risk factors by themselves do not cause disease, but can contribute to an increased risk of its occurrence. Some of those are, in this case, age, racial origin, familial tendency, hormonal influences, diet. Histological analysis showed that in 95 % of cases of prostate cancer is detected adenocarcinoma originated from epithelial cells and gland secretory tubules. The remaining 5 % of cases involved, transitional, planocellular and neuroendocrine carcinoma. For histological diagnosis of prostate cancer is necessary that it comply with several criteria. First of all, necessary is the presence of cellular atypia, which refers to a bizarre set of cells, then a change in the relationship between the nucleus and cytoplasm, disrupted prostate lobular architecture, and change in the intensity of staining. One of the important features of cancer is invasive growth, in this case the tendency of penetration outside the capsule of the prostate and spreading to surrounding structures, with possible distant metastases, which is the essential characteristic of malignancy. Determination of malignancy degree is the basis for a selection of therapeutic approach and prognosis. For this purpose in the world is generally accepted Gleason score. It refers to the degree of differentiation

of the gland. The predominant histological picture is designated as primary and secondary as a minor. Both are rated from 1-5. Summing up produces a value of Gleason score. The higher the Gleason score is the greater is the degree of malignancy (5).

As noted above, the increase in number of new cases of prostate cancer in recent years can be partly explained by advances in diagnosis. Three indispensable tests in the diagnosis of prostate cancer are: a) Digito-rectal examination, simple and affordable test, but insufficiently specific and needs to be supplemented with the remaining two tests; b) Ultrasound of the prostate and c) Analysis of serum prostate specific antigen (PSA).

PSA is a serum glycoprotein, which secrete the prostate gland. It is not a tumor marker because its value can be increased with the other, benign prostate diseases, although it is responsible for the detection of a large number of prostate cancer in less advanced stages. Generally is accepted value of 4 ng/ml as the upper limit, although in rare cases the cancer can be present even if the PSA levels are below 4 ng/ml (6). In addition, determined is the ratio between free and total PSA (f/t PSA), which also has prognostic significance, since the value below 0.20 speaks in favor of malignancy and higher values indicate other, more benign prostate disease. In case of doubt on prostate cancer, a biopsy is indicated. Since the introduction of this diagnostic procedure until now, the method is well advanced. Today the standard method is transrectal prostate biopsy with biopsy gun guided by transrectal ultrasound (7).

Treatment of patients with prostate cancer depends on the stage of the disease at the time of detection and the expected duration of the patient's life due to associated diseases. Therapeutic options are active monitoring of the patients, radical prostatectomy, radical radiotherapy, complete androgen blockade (chemical or surgical).

2. GOAL

With this research we wanted to show the number of patients treated for prostate cancer in Bihac Cantonal Hospital, in correlation with diagnostic parameters.

3. MATERIAL AND METHODS

By retrospective study we analyzed hospital records (history of the disease, outpatient and surgical protocols) of patients diagnosed with prostate cancer. Covered the period was from January 2011 to December 2012. Patients were subjected to the usual diagnostic protocol: clinical urological examination, transabdominal ultrasound with a multi frequency probe of 3.5-5 MHz, laboratory tests (PSA, f/t PSA), prostate biopsy and additional imaging diagnostic procedures in selected patients.

4. RESULTS

Retrospective analysis of hospital records, for a period of two years, identified 70 patients in who by the use of the usual diagnostic protocol was diagnosed prostate cancer.

The average age of patients was 70.9 years (51-91 years).

Each patient had at least one measured serum PSA values, with a large variation in findings, from 1.6 ng/mL to 3332 ng/ml. F/t ratio was determined for each patient. The lowest value was 0.02 and the highest 0.627 (average f/t PSA = 0.13)

Patients, on the basis of the PSA value were divided into groups: first group, patients with PSA value up to 2.5 ng/ml (1 patient), the second group PSA 2.5-4 ng/ml (3 patients),

the third group with PSA of 4-10 ng/ml (12 patients), a fourth group with PSA 10-20 ng/ml (15 patients), the fifth group with PSA 20-50 ng/ml (9 patients) and the last group of patients with PSA above 50 ng/ml (30 patients).

	<2,5 ng/ml	2,5-4 ng/ml	4-10 ng/ml	10-20 ng/ml	20-50 ng/ml	>50 ng/ml
>80 years						5
71-80 years		2	4	10	2	9
61-70 years			2	3	5	14
51-60 years	1	1	6	2	2	2
Total	1	3	12	15	9	30

Table 1. PSA values according to age groups

Prostate biopsy results were available in 41 patients. A biopsy was not performed according to the previously given and strict criteria. It is done taking into account the results of previously conducted diagnostic procedures and set up clinical suspicion on prostate cancer.

	Gleason score 6	Gleason score 7	Gleason score 8	Gleason score 9
>50 ng/ml			2	3
20-50 ng/ml	1	2	4	
10-20 ng/ml	3	4	3	3
4-10 ng/ml	3	4	5	
2,5-4 ng/ml		3		
<2,5 ng/ml	1			
Total	8	15	15	3

Table 2. Correlation of PSA values and biopsy finding

	T2a	T2b	T3a	T3b
>50 ng/ml		4		1 (+N1M1)
20-50 ng/ml	1	4	1	1 (+N1)
10-20 ng/ml	4	6	1	2(+N1)
4-10 ng/ml	4	7 (+1Mx)		1 (+N1)
2,5-4 ng/ml	1	2		
<2,5 ng/ml	1			
Total	11	23	2	5

Table 3. Correlation of PSA values and cancer stage among patients that underwent biopsy

Depending on the results of the diagnostic tests, the patients were subjected to an appropriate therapeutic protocol. In that sense 26 patients underwent radical prostatectomy, 41 patients underwent palliative orchiectomy, also performed are 3 transurethral resections of the prostate with orchiectomy.

	Surgery
Radical prostatectomy	26
Palliative orchiectomy	41
Orchy+TURP	3
Total	70

Table 4. Type of surgical treatment

5. DISCUSSION

Prostate cancer has undoubtedly great importance in the general population, due to the fact that it is the most common malignant tumor in men aged over 65 years. Results of this study showed that the majority of patients diagnosed with prostate cancer are aged over 60 years. There is the need for the introduction of a planned treatment of prostate cancer, given the

expected longer life span of patients in the future, and therefore, the expected increase in the number of patients.

There were discussions about treatment options, once the diagnosis of cancer has already been set. Best prognosis, with the possibility of complete cure has patients with localized disease, the value of PSA under 20 ng/ml, and life expectancy for at least another 10 years. These are candidates for radical prostatectomy. Of the 70 patients in our study, only 26 of them were subjected to this therapeutic procedure. Most of the patients were subjected to a method of palliative, indicating a late diagnosis.

In recent years, diagnosis of prostate cancer is well advanced. Broad application of PSA test for sure contributed to early detection. While it is generally accepted value of 4 ng/ml as the upper limit, malignant process at lower values is not excluded. In our study, we had a patient with prostate cancer and a PSA value of 1.6 ng/ml. However, from our study of 70 patients, 30 of them had a PSA value above 50 ng/ml at the time of reporting to the doctor. Another 36 patients had PSA in the range from 10 to 50 ng/ml. Thus, a larger number of patients, according to the PSA at time of diagnosis, had already advanced tumor process. Therefore was possible only limited therapeutic options and the more effective treatments were impossible. Generally, PSA correlate well with malignant diseases of the prostate, as evidenced by the results of our research.

In the world already exist an initiative to introduce the PSA screening for prostate cancer as routine analysis for all patients aged over 50 years, and even below the age of 50, when there is family history or person belongs to a population that is often affected by this disease (African Americans) (8). In Denmark PSA screening on prostate cancer is recommended for men with at least two close relatives diagnosed with prostate cancer (9). There are other proposals that PSA testing, in the form of screening, should be selectively applied to a selected population, i.e. one that is at higher risk of developing prostate cancer (10, 11, 12).

Regarding this, there are many controversies. Specifically, the elevated values of PSA are not necessarily related to the malignant process. They can be found in other, benign diseases of the prostate (benign prostatic hyperplasia), urinary tract infection, after prostate biopsy. Also, we should take into account the effect of drugs such as Dutesteride or Finasteride, which lowers the PSA value and are used for benign prostatic hyperplasia, which can ultimately disguise the malignant process. In addition, there is a fear of "over diagnosis" of prostate tumors and exposure of many patients, too often unnecessary procedures, which entails the potential side effects such as urinary incontinence, erectile dysfunction, infection.

In fact, according to some studies, only 25% of patients undergoing prostate biopsy had confirmed malignant process (13). According to some authors, PSA testing should be voluntary, once to the patient is provided insight into the good and bad sides of the tests (14). There are also suggestions that men with the expected longer life span have a greater potential benefit from being subjected to PSA testing (15). However, by examining the results of our study, it can be seen a good correlation between PSA and extent of tumor process. Bearing in mind that nearly half of the patients had a PSA over 50, there is no doubt that with the test for prostate cancer in men over 50 years, certainly many of these people will earlier came to a urologist, which would ultimately affect the success of the therapy and certainly the prognosis in these patients.

Regardless of the results of large studies, such as the PLCO (prostate, lung, colorectal, ovary) and indications that the incidence of prostate cancer is higher in men who underwent annual screening, but that mortality is the same as in the control group (16), in our conditions an analysis of PSA in men over 50 years would certainly gave favorable results. After all, a European study of screening for prostate cancer, and some studies in the United States, pointed to a lower mortality rate compared to the control group (17, 18).

6. CONCLUSION

Retrospective analysis of medical documents of patients treated due to the prostate cancer in the Bihac Cantonal Hospital, over a two year period, we concluded that common diagnostic and therapeutic protocols were applied. For a successful therapeutic approach and a good prognosis, it is necessary to detect diseases at an early stage. PSA value can be regarded as a reliable diagnostic marker for early detection of this disease.

CONFLICT OF INTEREST: NONE DECLARED.

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