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Prevalence of Castration Success Rate in Iranian Metastatic Prostate Cancer Patients: A Referral Center Statistics

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Dear Editor,

Prostate cancer (PC) is the most common malignancy in men (1, 2). Choosing the appropriate treatment is important, especially in metastatic PC (3), and one of the treatments that is used, is luteinizing hormone-releasing hormone (LH-RH) agonist drugs that cause hormonal castration and tumor deprivation (4). But, in some cases, patients do not respond to this drugs and the level of testosterone failed to drop. In these cases, we require the use of other treatments (5, 6).

In this prospective study, after the approval of Ethics Committee was obtained, 36 patients with mean age of 71.86 $\pm$ 7.25 years (minimum 58 years and maximum 84 years), who were referred to Shohada-e-Tajrish Hospital, Tehran, Iran, were treated with LH-RH agonist (Diphereline® 3.75 mg IPSEN company) for 3 months. Serum prostate-specific antigen (PSA) and testosterone levels were evaluated in the two phases including before and 3 months after treatment; then, the frequency of the participants with testosterone level above 20 ng/dL (castration not achieved) were determined and reported based on the age and location of the metastasis.

Mean testosterone concentrations in the morning before and 3 months after starting hormone therapy were 362.94 $\pm$ 141.9 ng/dL and 12.21 $\pm$ 10.97 ng/dL, respectively, which was significantly decreased. The mean PSA level before and 3 months after the start of treatment was 20.68 $\pm$ 12.18 ng/mL and 6.29 $\pm$ 6.2 ng/mL, respectively. In two cases (5.6%), the PSA level was not less than 50% of the baseline 3 months after starting the treatment, and in 4 cases (11.1%), testosterone level did not drop to less than 20 ng/dL (castration not achieved). All four patients that have been considered as "castration not achieved" have been associated with multiple metastases. Three cases (75%) of these patients had visceral metastasis. It was found that the success in castration was significantly correlated with location of the metastasis (P = 0.001) and there was no correlation with age and number of metastases.

Usually, the time required for hormonal castration after LH-RH agonist administration is 1 to 2 months, and the patients will follow up with PSA to evaluate the success of treatment.

In recent studies, there were cases of treatment failure that the patients after hormonal castration were presented with relapse and castration failures without increasing PSA (7).

Determining the prevalence of this group is very important in specification the effective factors in the castration success rate in patients with metastatic prostate cancer, and help to choose of appropriate alternative treatment. Currently, early chemotherapy is advised in patients with visceral metastasis (8, 9). The prevalence of castration success rate ranged from 47% to 90.5% in same studies (10). In this study, the prevalence of treatment success rate was 94.4% in patients, who were checked with PSA only and castration not achieved in 5.6% of patients, who were followed by PSA and 11.1 % of patients, who were checked with PSA and testosterone. Therefore, PSA checking would not seem to be sufficient only, and it would be advisable to check the level of testosterone alongside the PSA.

The present study showed that the prevalence of castration success rate by measuring serum testosterone level in Iranian metastatic prostate cancer patients underwent LH-RH agonist treatment was 88.9%.

Table 1. Characteristic Data of Castration Failure Patients[a]

N	Age	Metastasis Site	GS	Baseline PSA (ng/mL)	Base Line Testosterone (ng/dL)	PSA After 3 Month (ng/mL)	Testosterone After 3 Month (ng/dL)
1	79	Bone, liver and lung	10	100	234.98	65.5	86.9
2	66	Bone and lung	10	54	388.61	45.7	57.9
3	66	Bone and lung	9	28	364.2	10.3	23.45
4	73	Only bone	9	21.1	459.9	7.6	27.87

Abbreviation: GS, Gleason score.
[a] In cases 1 and 2, the PSA level remained elevated despite treatment.

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Footnotes

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