



# Approach to Prostate Cancer Treatment in Elderly Patients with High Comorbidity

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## Abstract

The incidence of prostate cancer increases with age, and elderly patients often have other accompanying diseases. The most important clinical prediction for deciding on curative treatment in localized prostate cancer treatment is the 10-year survival status of the patient. In advanced prostate cancers, treatment is usually decided according to the comorbidity and age of the patients. Guidelines and consensus reports recommend that patients' general health status should be determined by validated health status screening forms in deciding on treatment for prostate cancer in elderly patients. After evaluating the health status, the treatment options recommended by the guidelines should be presented to the patients according to the risk group of the patient and the treatability of the existing diseases, regardless of their age. Patients who are found to be healthy as a result of the evaluation should be included in the standard treatment applied to non-elderly patients. For patients who are frail but have treatable disease, standard treatment is recommended after correction or improvement of comorbidities. Supportive treatment and adapted treatment options should be offered to the patients who are in a frail state.

**Keywords:** Comorbidity, prostate cancer, health status, elderly

## Introduction

Life expectancy is increasing in the world and in our country, so the majority of the patients who encounter with prostate cancer (PC) are older patients. The median age of patients diagnosed as having prostate cancer is 66 in the world. Mostly metastatic PC is diagnosed at a later age and the median age of death is reported as 80 (1). The proportion of patients over the age of 65 who will be diagnosed as having PC in the United States in 2030 is estimated to be 70% (2). There is a similar increase in expectation for Europe (3). Early and late PC treatment in elderly patients will increase gradually in the coming decades and will become a common public health problem (4).

In the United States of America, curative treatment is applied to only 41% of patients in the intermediate and advanced risk group in men over 75 years of age, while curative treatment is applied to 88% of patients aged 65-74 (5). Life expectancy of more than 10 years in treatment of localized PC is a key clinical factor for benefit from local treatment. This is due to the impact of existing comorbidities on life years. Studies report that the presence of comorbidity is a more important factor than age in predicting death from localized PC (6). At the end of a decade,

most patients with a Charlson comorbidity index  $>2$  die due to comorbid diseases, regardless of age or cancer aggressiveness.

In this review, comorbidity-weighted recommendations and treatment approaches in the treatment approach of elderly patients with PC and high comorbidity will be reviewed.

## History

The International Society for Geriatric Oncology (SIOG) has published several different guidelines on the management of PC in elderly patients since 2010 (7,8,9,10). Although none of these literature reviews are systematic, they are all reported as consensus reports that include multidisciplinary expert opinions (4). Their purpose can be basically expressed as defining the "elderly frail" patient group in urology and oncology. These guidelines have accepted patients over 70 years of age as the elderly.

In the first SIOG article, the most important geriatric factors such as dependency, comorbidity, and nutritional status were discussed (7). The most important result was that the treatment should be made not according to chronological age, but should be made according to different tools that scanned the general

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health status and according to methods such as “comprehensive geriatric assessment” (CGA) for detailed examination. This working group published the first SIOG recommendations in the same year (8). In the updated guideline in 2014 (10), they suggested that simple geriatric evaluation with Geriatric 8 (G8) health status screening tool (11) or CGA in geriatric clinics in some patients should be performed to identify patients and distinguish those who would benefit from treatment. The 2017 update contained 2 important perspectives: Screening the cognitive status disorder (with the Mini COG™ tool) and the introduction of early palliative care (9).

The second important date was the full adoption of the SIOG guidelines by the European Association of Urology (EAU) in 2017 (The EAU/ESTRO/SIOG Guidelines) (12). In 2018, the same working group made a new update. This update is very comprehensive and includes surgery, minimally invasive treatments and follow-up, radiotherapy (RT) and brachytherapy, health status assessment, and geriatric oncological conditions in low-middle-income countries (4) (Table 1).

### The Assessment of General Health Status

The basic approach in PC is to decide according to the biological age and current general health status rather than the chronological age of the patient (12). For this purpose, a standard clinical evaluation and the Eastern Cooperative Oncology Group Performance score are generally used in the clinic to distinguish healthy individuals from unhealthy individuals (13) (Table 2). CGA can be used to define health status and predict treatment risks (14). The SIOG strongly recommends that CGA be included in the treatment plan for elderly patients (15). However, CGA will be applied with difficulty as it will be both costly and time consuming for clinicians who do not have a geriatric clinic and do not have sufficient experience in this field. Therefore, it may not be necessary to fill CGA in all elderly patients. It will be more appropriate to determine the patients who will require advanced geriatric examination. If necessary, CGA should be performed after geriatric screening and examinations. Since the health status of elderly patients may change over time, evaluations should be repeated at every step (4).

### 1. Geriatric Scanning

The G8 screening is the most common and short-lasting screening method to identify patients who will require geriatric evaluation (11,16). G8 is an easy assessment method that can be completed in 4 minutes (Tables 3 and 4). It has been specially developed for patients with cancer and includes nutritional status, body mass index, mobility, neuropsychiatric problems, multiple drug use, self-health status and age. The highest score is 17 and score  $\leq 14$  is considered abnormal. The use of G8 screening is also recommended by EAU guidelines (17). The 2017 SIOG guidelines recommends Mini-COG™ to evaluate cognitive functions together with the G8 screening (9). Mini-COG™ has been determined to be the most compatible test with Mini Mental State Examination among 10 different cognitive screening tests (18,19). When the result is abnormal,

further investigations should be performed to provide a complete cognitive assessment of the patient. Mini-COG™ consists of three-word-recall test and clock drawing test and can be completed in 5 minutes. Values  $\leq 3/5$  indicate that the patient needs to be guided for fully evaluation of potential dementia (4).

### 2. Comprehensive Geriatric Assessment (CGA)

CGA should be applied to patients with G8 score  $\leq 14/17$ . CGA, which is the gold standard for geriatric health status assessment, includes a comprehensive, interdisciplinary diagnostic process to determine the care needs of frail elderly patients, plan care and improve outcomes (20,21). CGA includes functional status, fatigue, cognitive status, comorbidity, mental status, social support, nutrition, and geriatric syndromes (22). In elderly patients with cancer, CGA can predict survival and treatment-related adverse effects, influence treatment choice, and reflect patients' values and treatment goals, as well as their decision-making capacity (15).

### 3. The Geriatric Assessment

It may be necessary to conduct a relevant multidisciplinary study for each problem detected in CGA. It is recommended that the multidisciplinary team includes nurses, psychologists, dieticians, social workers, pharmacists and other relevant therapists (4). However, although CGA is recommended for all patients with cancer, it has been reported that its clinical application has been investigated in very few studies (23,24,25). Many studies are currently ongoing, and higher level of evidence will be reported with their results (4,26).

As the number of elderly patients with cancer is increasing all over the world, the need for a healthcare team trained in geriatrics will indirectly increase. This team will need electronic evaluation forms that can be used more quickly to inquire about the health status of elderly patients (27). There are 3 electronic CGA forms available today (28,29,30). Although it is stated that these forms can be easily used even in the most crowded oncology clinics, they need to be supported by larger series (4).

The latest American Society of Clinical Oncology (ASCO) guidelines recommend integrating CGA into daily practice in elderly patients receiving chemotherapy, and recommend the use of a validated tool listed in ePrognosis to estimate non-cancer life expectancy in the adjuvant and treatment setting (31,32). Schonberg and Lee indexes are also well validated usable forms. These indices include both comorbidities and functional status (4). The ASCO guidelines recommended the use of different screening tools, but especially the use of CGA, in addition to screening tests such as G8 and the geriatric assessment (31).

In summary, when the ASCO guidelines recommendations are adapted to SIOG guidelines;

- First, elderly patients with PC should be screened using the G8 and Mini-COG™.
- Estimated non-cancer survival should be determined using ePrognosis in early stage PC, especially Shonberg and Lee indexes contribute to decision making.

<b>Table 1. The International Society for Geriatric Oncology's recommendations for the treatment of elderly patients with prostate cancer</b>
<b>Assessment of health status</b>
<ul style="list-style-type: none"> <li>• Treatment should be based on health status, rather than age, and also on the patient's preference.</li> </ul>
<ul style="list-style-type: none"> <li>• It is recommended to scan for frailty using the G8 tool and to scan for cognitive impairment with Mini-COG™. In patients with Mini-COG™ score <math>\leq 3/5</math>, a more detailed cognitive assessment is required.</li> </ul>
<ul style="list-style-type: none"> <li>• Assessment of dependence, comorbidity, and nutritional status in patients with a G8 score <math>\leq 14/17</math> classifies patients into three health status groups: (1) "healthy" or "fit" patients; (2) "vulnerable" patients; and (3) "frail" patients. Vulnerable and frail patients are candidates for geriatric evaluation and geriatric examinations.</li> </ul>
<ul style="list-style-type: none"> <li>• Patients benefit most from a geriatric assessment when identified as frail because geriatric management allows for a more appropriate treatment plan.</li> </ul>
<b>Management of localized prostate cancer in elderly patients</b>
<ul style="list-style-type: none"> <li>• Prostate cancer (PC) risk should be determined according to the D'Amico classification.</li> </ul>
<ul style="list-style-type: none"> <li>• Healthy elderly patients with PC in the D'Amico high-risk group who have a chance of living for more than 10 years are more likely to benefit from curative treatment.</li> </ul>
<ul style="list-style-type: none"> <li>• Elderly patients with moderate to low risk PC are likely to benefit from active surveillance or a watchful waiting, depending on their individual expected survival time. A curative approach should be discussed with intermediate risk patients with a life expectancy of at least 10 years.</li> </ul>
<ul style="list-style-type: none"> <li>• The balance between the benefits and harms of androgen deprivation therapy (ADT) for localized PC should be carefully considered. It should be noted that the risk of diabetes, cardiovascular complications, osteoporosis, bone fractures and cognitive dysfunction may increase. Adjuvant ADT should only be used in moderate and especially high risk diseases. In patients who are symptomatic or asymptomatic but in the high risk D'Amico group, ADT monotherapy should only be discussed with patients who are unwilling or who cannot receive any local treatment.</li> </ul>
<ul style="list-style-type: none"> <li>• A validated tool such as Schonberg or Lee index can aid in predicting life expectancy independent of PC.</li> </ul>
<b>Advanced prostate cancer treatment in elderly patients</b>
<b>• Metastatic castration sensitive prostate cancer</b>
1. Six cycles of docetaxel concurrent with ADT is the first recommended treatment in "healthy" patients with newly diagnosed hormone sensitive metastatic PC. It is only suitable for the treatment of high volume diseases. The use of primary prophylaxis with granulocyte colony stimulating factor (G-CSF) should be considered.
2. ADT + abiraterone is another recommended first-line treatment. It is indicated in "healthy" men with newly diagnosed hormone sensitive metastatic PC with high risk disease. The use of abiraterone in the M1 indication should be carefully evaluated against possible side effects and costs.
3. In all other cases, only ADT remains standard.
4. Patients treated with ADT should be evaluated for bone densitometry and should receive calcium (if dietary intake is insufficient) and vitamin D supplements. For those at high risk of falling or having fractures, it is recommended to use denosumab 60 mg subcutaneous injection every 6 months at osteoporosis prevention/therapy approved doses. In settings where denosumab is not available, osteoporosis prevention/therapy approved doses of bisphosphonates should be used. Fracture risk is best assessed using a validated scale.
5. Primary radiotherapy to the prostate is a standard treatment option for healthy men with newly diagnosed disease with low metastatic burden.
<b>Advanced prostate cancer treatment in elderly patients</b>
<b>• Metastatic castration resistant prostate cancer</b>
1. In metastatic castration resistant prostate cancer (mCRPC), docetaxel 75 mg/m <sup>2</sup> every 3 weeks is suitable for elderly patients with good health status. Geriatric evaluation and examination results should be considered for frail elderly patients, and the bi-weekly regimen should be considered in those who cannot take the three-week regimen. It is recommended that primary prophylaxis with G-CSF be used in a three-week regimen.
2. Abiraterone and enzalutamide are other first-line drugs in mCRPC.
3. Options for patients who have previously received docetaxel include cabazitaxel, abiraterone and enzalutamide.
4. The optimum sequence of treatments is subject to investigation. After the failure of a new hormonal agent, agents with another mechanism of action, including taxanes or radium-223 (i.e. in cases of bone metastasis), should be the preferred choice due to cross-resistance between androgen- deprivation agents.
5. Elderly patients need careful evaluation of drug interactions and proactive management of side effects. It is important to first perform cardiac evaluation, treat pre-existing high blood pressure, correct hypokalemia, and monitor hemogram, aspartate aminotransferase, alanine aminotransferase, potassium, glycemia, and blood pressure. Prospective evaluation of the side effects of new hormone therapy should be made in routine clinical practice.
6. Patients who have received first line treatment, patients with no visceral and dense lymph node metastasis, with bone metastasis, and with docetaxel failure are eligible for radium-223.
7. Palliative treatments include radiotherapy, radiopharmaceuticals, bone-sparing treatments, palliative surgery, medical treatments for pain and other symptoms.
<ul style="list-style-type: none"> <li>• Basically, early palliative approaches should be applied in mCRPC</li> <li>• Adapted physical activity is recommended at all stages of prostate cancer management; further clinical studies are required in elderly patients.</li> </ul>

• The use of a frailty index suggested by the geriatric assessment or a similar tool predicts mortality and classifies elderly patients into healthy, vulnerable or fragile groups. The SIOG working group decided to use the health status category in 2014. Accordingly; (1) Healthy elderly is defined as an elderly with a G8

screening score of  $>14/17$ , without comorbidity, dependency, malnutrition or impairment in cognitive status, (2) Vulnerable elderly is defined as an elderly who is unable to perform some daily activities, with moderate malnutrition or comorbidity, and (3) Frail elderly are patients who are debilitated, dependent,

Karnofsky status	Karnofsky grade	ECOG score	ECOG status
Normal, no complaint	100	0	Normal. Able to continue normal activities before the disease
The patient can continue his/her normal activity, there may be several symptoms or signs of the disease.	90	1	Can continue his/her daily life with tolerable tumor findings
The patient continues his/her normal activities with some difficulties, there are minor signs and symptoms of the disease.	80		
The patient can take care of himself/herself and cannot do his/her normal activity and job.	70	2	Having disturbing tumor findings but spending more than 50% of his/her time out of bed
Patient can meet his/her needs, rarely needs help, needs some help	60		
Help and medical attention are often required.	50	3	Severely ill and forced to stay bed-bound more than 50% of his/her time
Special care and assistance are required.	40		
Disabled enough to require hospital care, but no risk of death	30	4	Being in a very ill condition and spending all the time tied to the bed
Severely ill, need active supportive care in the hospital.	20		
About to die	10		
Dead	0	5	Dead

ECOG: Eastern cooperative oncology group

	Question	Answer (Score)
A	In the last 3 months, was there digestive problems, a decrease in appetite, and a decrease in nutrition due to chewing or swallowing difficulties?	0 = severe decrease in nutrition 1 = moderate decrease in nutrition 2 = no decrease in nutrition
B	Was there any weight loss in the last 3 months?	0 = More than 3 kg 1 = Did not know 2 = Loss of 1-3 kg 3 = No weight loss
C	Mobility	0 = Dependent on bed or chair 1 = Can get out of bed or chair, but cannot go out 2 = Can go out
E	Neuropsychological problem?	0 = Severe dementia or depression 1 = Mild dementia 2 = No psychological problems
F	Body mass index (BMI)	0 = BMI <19 1 = BMI 19-21 2 = BMI 21-23 3 = BMI ≥23
H	Prescribed drug use less than 3	0 = Yes 1 = No
P	How does the patient feel when compared to other people of the same age?	0.0 = Not good 0.5 = Did not know 1.0 = Same 2.0 = Better
	Age	0 >85 1 = 80-85 2 = <80
	<b>Total score</b>	0-17

unable to perform many daily activities, have severe comorbidity and severe malnutrition. Vulnerable and frail patients should be treated with detailed geriatric assessment (Figure 1).

## Prostate Cancer Treatment in the Elderly and Patients with Comorbidity

### Localized Prostate Cancer - Active Monitoring

In elderly patients with poor health status, surgical treatment provides a low rate of cancer-specific and overall survival advantage, however, with increasing age, side effects of surgery are more common. Elderly patients over the age of 65 and with poor health status have year gain with a better quality of life with active follow-up (33). Active surveillance or watchfull waiting can be applied to patients in the low risk group. However, the risk of dying from PC or any other concomitant cause should be carefully evaluated and active surveillance should be decided accordingly (34). Although there was no difference in terms of cancer-specific survival between radical prostatectomy (RP), RT and active surveillance groups at the end of the 10 years of the ProtecT study, the highest quality of life was reported in the active surveillance group. Of the population group of the study; 60% were low-risk group patients and 40% were medium-risk group patients (35).

### Localized Prostate Cancer-Radical Prostatectomy

Although advanced PC and higher rates of cancer-specific mortality are observed in elderly patients, most of the causes of death are other accompanying diseases. Those with high-risk diseases actually constitute the group of patients who take or will take the most benefit from RP (36). There is no significant difference in terms of cancer-specific mortality in high-risk patients over 70 years of age or below who have undergone RP at the end of 10 years of follow-up (37). The benefit of surgery in terms of cancer-related death is higher than active surveillance in patients with localized PC under the age of 65 years. However, in elderly patients, RP reduces the risk of metastasis and the use of androgen deprivation therapy (ADT) (38). In another study,

Table 4. Cumulative illness rating scale-geriatric (CISR-G)			
"Cumulative illness rating scale-geriatric" score	Age	Date	Scorer
Scores			
0		None	
1		Mild (or past serious health problem)	
2		Moderate (moderately significant disability, requiring level 1 treatment)	
3		Severe (persistent marked disability/uncontrolled chronic illness)	
4		Advanced severe (need for immediate treatment/end-stage organ failure/severe functional impairment)	
		Score:	
Cardiac			
Vascular			
Respiratory			
Eye, ear, nose, throat, larynx			
Upper gastrointestinal tract			
Lower gastrointestinal tract			
Hepatic			
Kidney			
Genitourinary			
Musculoskeletal system			
Neurological			
Endocrine/metabolic			
Psychiatric			
Total score			

RP (with adjuvant therapies) in high-risk disease resulted in cancer-specific survival rates of 91%. Survival was reported as 95% if any of the risk factors [Gleason >7, >T2, prostate-specific antigen (PSA) >20 ng/mL], and 79% if all three were present (39). The risk of early complications after RP is associated with increased comorbidity compared to age. On the other hand, in the long term, the risk of urinary incontinence and erectile dysfunction is affected more by increasing age (40,41,42).

### Localized Prostate Cancer-Radiotherapy

With RT applied with the appropriate dose (>72 Gy) and technique, similar cancer control and treatment-related comorbidity rates with RP are achieved, regardless of age (43). Studies on RT using hypofractionated techniques in recent years give high biochemical control rates in all risk groups (44,45,46,47,48). However, routine use of RT is not recommended in patients in the low risk group due to the

increase in late complications (4,48). In addition, although most of these studies involve patients over the age of 70, no specific results have been reported for these age groups, so definitive interpretations can not be made for the elderly group. Although dose escalation studies on brachytherapy have been widely conducted in recent years, age-specific results have not been reported as in hypofractionated techniques. In addition, the procedure requires anesthesia, although less side effect rates have been reported (49,50,51,52,53,54). Administration of ADT together with RT increases the morbidity and mortality of pre-existing heart disease in elderly patients. Patients with moderate and severe comorbidity can not obtain a significant life-year benefit from ADT with RT. However, it has been reported that high-risk patients with no or less comorbidity benefit from ADT (55). In the medium-risk patient group, the combination of short-term ADT and RT is recommended (55,56).

### Localized Prostate Cancer-Minimally Invasive Treatments

Minimally invasive-ablative therapies are still experimental and there is currently insufficient evidence to recommend them in elderly patients and patients with comorbidities.

### Localized Prostate Cancer-Androgen Deprivation Therapy

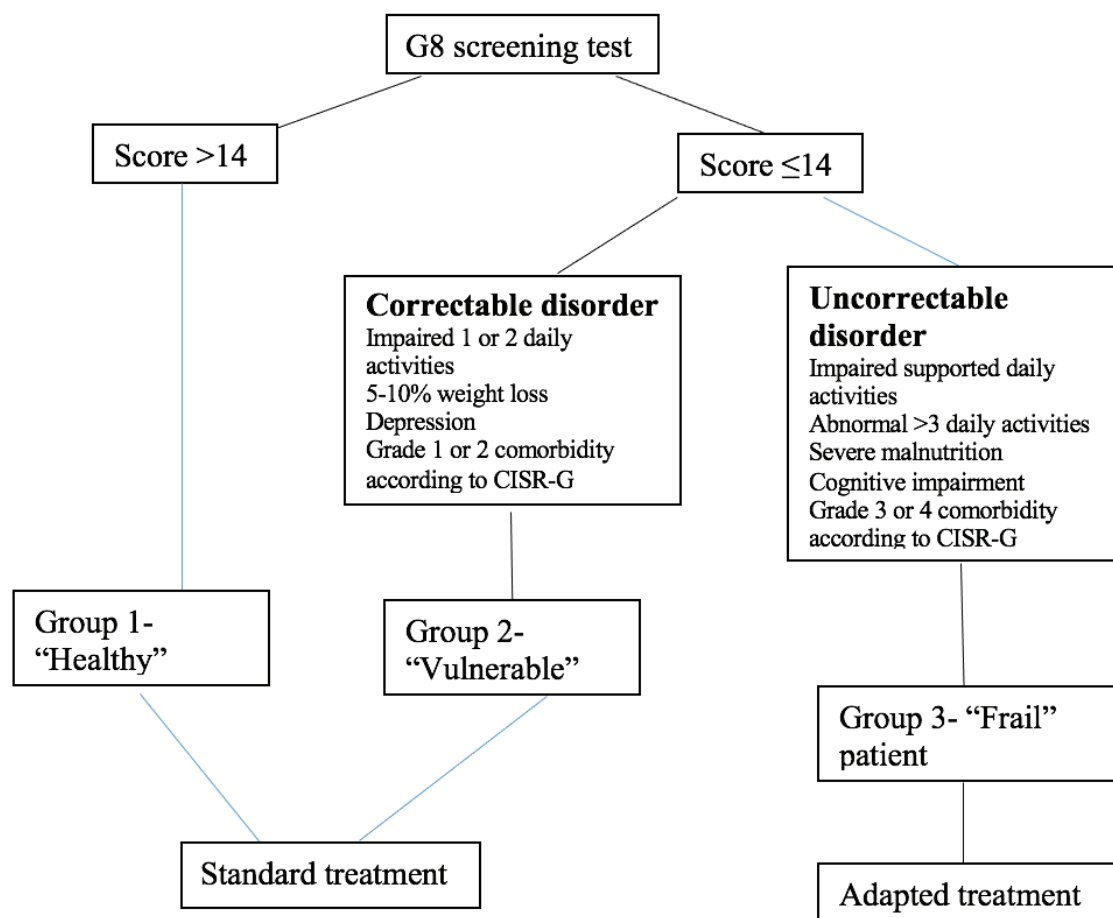
ADT alone should not be used in patients with localized PC without metastasis. Patients with locally advanced disease (T3-T4), PSA value higher than 50 ng/mL and PSA doubling time less than 12 months benefit from early ADT (57,58). In patients with high-risk diseases and in very frail patients, early initiation of ADT provides little overall survival advantage, but cancer-specific or symptom-free survival benefit has not been reported (57).

### Metastatic Prostate Cancer-Castration Sensitive Disease

The first-line treatment is ADT in the elderly with hormone sensitive PC. Bone densitometry is recommended to determine basal bone mineral density in elderly patients and calcium and vitamin D supplements are recommended to protect from osteoporosis (10).

In recent years, with the LATITUDE study, it has been reported that the addition of abiraterone to the ADT has significantly improved overall survival and radiological progression-free survival in the elderly (>70 years old) patient group. However, the strength of this study was found to be insufficient to make comments for patients >75 years old, and toxicity was not reported by special age groups (59,60). In the STAMPEDE study, it was stated that the addition of abiraterone had a significant effect on overall survival in patients >70 years of age, and toxicity was found to be similar in this patient group compared to the group aged <70 years. However, patients with a history of cardiovascular disease were not included in this study (61).

With the early addition of docetaxel to ADT in the group of metastatic patients susceptible to castration, significantly higher overall survival rates were reported in CHAARTED, STAMPEDE and GETUG-15 studies, especially in high-volume disease [ $\geq 4$  bone metastases (one of them should be in spine bone) or pelvic bone and/or visceral metastasis] (62,63,64). The addition of docetaxel was reported to be beneficial in patients younger



**Figure 1.** Decision tree in prostate cancer treatment according to health status  
CIRS-G: Cumulative illness rating scale-geriatric

than 70 years of age or over (65). When evaluated as to whether there was a superiority between docetaxel and abiraterone, there was no difference in terms of the cancer-specific survival in the STAMPEDE study, while another metaanalysis reported that abiraterone was more effective in terms of overall survival (66,67). However, since the rate of patients aged >70 years is 29% in these studies, this makes it difficult to interpret for the elderly patient group (4).

In the subsequent study of STAMPEDE, the groups with metastatic PC with and without primary RT were compared. In the subgroup analysis, it was reported that RT significantly contributed to overall survival in low volume metastatic patients (68). Primary RT was recommended as a standard in newly diagnosed metastatic PC with low metastatic load. However, the data in the study were not reported specific to age (4).

There is not enough information about the toxicity of abiraterone and docetaxel in the castration sensitive group and the elderly patient group (4). However, in docetaxel chemotherapy, especially in the elderly patient group, toxicity related to neutropenia was reported to be more frequent in castration-resistant patients (69).

Routine use of bisphosphonates or denosumab is not

recommended to prevent skeletal complications in this patient group unless there is a suspicion of fracture or castration-resistant disease with bone metastases (70).

### Metastatic Prostate Cancer-Castration Resistant Disease

The standard treatment for patients with castration-resistant metastatic PC and tolerable comorbidity is docetaxel chemotherapy, with similar results to younger patients (71). It was reported that in older and more frail patients, granulocyte colony stimulating factor prophylaxis with docetaxel could be given to protect the patient from febrile neutropenia, every 2 weeks (50 mg/kg for four weeks) or weekly instead of every 3 weeks (75 mg/kg) (72).

It was reported that the use of cabazitaxel as the first choice in castration-resistant disease was not superior to docetaxel (73). In the same study, overall survival was not found different, and toxicity was reported less with the dose of 20 mg/m<sup>2</sup> than 25 mg/m<sup>2</sup>. In second-line use, less toxicity was reported with the dose of 20 mg/m<sup>2</sup> than 25 mg/m<sup>2</sup> and a lower efficiency in terms of overall survival was not reported (74). It is recommended to prefer low doses in elderly patients as a better approach (4). In

two different studies, it was suggested that administration of cabazitaxel at different doses and days would reduce toxicity rates and that the use of granulocyte colony stimulating factor could be applied concurrently with treatment (75,76). In eligible patients cabazitaxel increases the life years in elderly patients receiving chemotherapy and susceptible to chemotherapy, similar to abiraterone acetate, enzalutamide, and sipuleucel-T (77,78,79,80,81,82,83).

Radiopharmaceutical agents are generally less toxic than chemotherapy agents, so they may be more suitable for elderly patients. Studies with Ra223 have shown that hospitalization due to bone problems decreases and that they generally cause less toxicity as a result of its positive effects on bone lesions with early administration programs (84,85,86,87). It has been reported that Ra223 can only be used with ADT and should not be used with other chemotherapeutic agents. Early results of the study of another new agent 177Lu-PSMA indicated that it was an effective treatment and its side effects were low (88).

In general, besides the side effects of ADT treatments, it has been reported that they are not generally associated with cognitive dysfunction as a result of the latest meta-analysis (89). Care should be taken in terms of the most important side effects of ADT, such as myocardial infarction, cerebrovascular disease, metabolic syndrome, diabetes, obesity, and dyslipidemia, and precautions should be taken, especially in elderly patients (90).

The general approach to PC in elderly patients, which is prepared based on the recommendations of the SIOG study group, is summarized in Table 1.

### Future Approaches

There are many unknown questions about the treatment of metastatic PC, especially in elderly patients. However, the successive use of abiraterone and enzalutamide, regardless of age and health status, can develop a high rate of cross-resistance, on the other hand, taxanes are considered highly effective drugs that can be used easily after new hormonal treatments (4).

Although it has been reported that poly ADP-ribose polymerase-1 inhibitors such as olaparib and ipilimumab as immunotherapy do not have a distinctly different side effect profile in the elderly patient group, the results of new studies are expected for more accurate interpretations (91,92).

### Conclusion

The choice of treatment should be decided in elderly patients with PC according to their general health status. Age affects the treatment less than comorbidity, and general health status should be determined with a validated screening form such as G8 and comorbid disease assessment scales. Geriatric evaluation should be made in patients according to their existing comorbidities. The health status of the patient should be determined according to the biological age and current comorbidity, not the chronological age. The standard treatment recommended by the guideline according to the current PC stage should be given to the patients without comorbidities, and standard PC treatment should be given after the evaluation of vulnerable patients and the geriatric examination-recovery.

Only palliative and supportive treatments should be applied to elderly patients who are found to be frail.

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### Authorship Contributions

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