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## 2.1 Bases for the Development of Prostate Cancer Units

Prostate cancer (PC) is established as one of the most important medical problems facing the male population. PC is the most common solid neoplasm (214 cases per 1,000 men) and the second most common cause of cancer death in men [1].

Its management involves several complex issues for both clinicians and patients. An early diagnosis is necessary to implement well-balanced therapeutic options and the correct evaluation can reduce the risk of overtreatment with its consequential adverse effects [2]. The optimal management for localized PC is controversial, with options including active surveillance, surgery, radiotherapy, and focal therapies. The management of the progressive disease after primary treatments and that of the advanced PC require a correct diagnostic evaluation and a therapeutic choice among radiotherapy, focal therapies, hormone therapies, chemotherapies, or other novel target treatments [3, 4].

Efficient organization of the national healthcare system can be a tool to help improve patient outcomes.

The natural history of PC from asymptomatic organ-confined disease to locally advanced, metastatic, and hormone-refractory disease describes the complexity of the biology of this tumor and justifies the need for a fluid collaboration between expert physicians.

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Breast and Prostate cancer, respectively, are the most common cancers in women and in men, and different similarities have been underlined. The paradigm of the patient consulting a multidisciplinary medical team has been an established standard approach in treating breast cancer [5]. Such multidisciplinary approach can offer the same optional care for men with PC as it does for woman with breast cancer.

In other disease sites, multidisciplinary cancer clinics have been associated with decreased time from diagnosis to initiation of treatment, shorter time to completion of necessary pretreatment consultations, and fewer patient visits to clinicians' offices before initiation of care [6]. Multidisciplinary physician discussions have been shown to be associated with improved adherence to guidelines supported by the literature [7]. In a multidisciplinary prostate cancer clinic, newly diagnosed patients can simultaneously meet with urologic, radiation, and medical oncologists specializing in prostate cancer. Such a model of cancer care affords patients the opportunity to learn about all management options simultaneously and to discuss the recommendations of their treating physicians in an open and interactive fashion, allowing for shared decision making and a potential reduction in physician bias. Although it is important to note that such benefits have been demonstrated in oncological disease sites other than PC, in the last 10 years several experiences on multidisciplinary management of PC have been published showing several advantages in the management of PC: Valdagni et al. [8, 9], first in Italy (2004) to establish an MDT at Istituto Nazionale Tumori in Milano, recently reported their 6-years experience of an MDT prostate cancer clinic in Italy. Interestingly, they reported that most of the patients with PC were staged in the low-risk group and that number increased significantly from 40 % in 2006 to 61 % in 2009. Moreover, they reported a high percentage (about 80 %) of patients managed with active surveillance. This data is very interesting and it underlined that active surveillance, as reasonable approach today in patients with low-grade disease, is more often a therapeutic choice in an MDT where the methods are often standardized, for example, in the use of new biomarkers such as PCA3 (prostate cancer antigen 3) or pro-PSA or in the management of new imaging tools such as mMRI (multiparametric magnetic resonance). Similar results were reported by other authors from other countries such as the USA where the organization of the healthcare system could be different from Europe [10]. Aizer et al. reported their experience on 701 men with low-risk prostate cancer managed at three tertiary care centers in Boston [11]. In this study active surveillance in patients seen at a multidisciplinary clinic were double that of patients seen by individual practitioners (43 % vs. 22 %), whereas the proportion of men treated with prostatectomy or radiation decreased by approximately 30 % ( $P < 0.001$ ). Interestingly, the number of physicians and specialties seen was significantly associated with the choice of active surveillance on univariate but not multivariate analysis. This data suggests that the multidisciplinary clinic itself, and not merely the number or type of physicians seen, is important to the shared decision-making process for selection of active surveillance and more generally to choose the best treatment for each individual patient. This aspect on MDT is very important because previous studies

examining patterns of care in patients with low-risk PC have consistently shown that specialists prefer the modality of treatment that they themselves deliver [12, 13]. Physician bias in the management of prostate cancer was illustrated in a study in which urologists and radiation oncologists were asked as to how they would want to be treated if diagnosed with PC; 79 % of American urologists opted for radical prostatectomy and 92 % of American radiation oncologists chose radiation therapy. Similarly, in a survey of urologists and radiation oncologists in which several hypothetical PC scenarios were generated and questions regarding the recommended management were posed, both types of specialists commonly recommended the therapy that they were capable of offering and also tended to overestimate the benefit of definitive therapy [12, 13]. More interesting, the physician bias is also evident in the management of locally advanced disease in which patients undergoing surgery often require an adjuvant radiation therapy. Heather et al. in a survey of oncologists and urologists in the UK noted that the percentage of urologists who recommended surgery in this category of patients is relatively high (about 20 %) [14]. These data underlined the importance of physician bias when the patient with PC faces the specialist and the multidisciplinary approach can reduce drastically this bias as reported by Aizer's study on MDT [11].

Given that a multidisciplinary management can bring several advantages in the management of patients with PC, another important aspect is how the patient perceives a multidisciplinary management and which grade of satisfaction patients can have. Magnani et al. on 2012 reported a 6-years attendance of multidisciplinary prostate cancer clinics in Italy [8]. In their experience, to evaluate overall patient satisfaction, patients were periodically asked to complete a 10-item satisfaction questionnaire, covering several aspects of the patient's management including Physician Referral Service, waiting time, information given on health, and medical care. Patient satisfaction ratings were high: the investigators used a 7-point scale (in which a score of 1 designates "very poor quality," whereas a score of 7 indicates "very high quality"). Scores between 5 and 7 were achieved for all measured domains, including observance of privacy, care provided by technical/nursing staff, care provided by the clinical staff, information on health, and medical care provided. The management of PC is complicated by the multitude of management options, the lack of proven superiority of one modality of management, and the presence of physician bias. The available data suggest that implementation of multidisciplinary models of care for patients with cancer, when feasible, may be associated with high patient satisfaction rates and may alter practice patterns in ways that minimize physician bias [11].

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## 2.2 How to Organize a Prostate Cancer Unit

Given that a multidisciplinary approach can bring many advantages in the management of patients with PC (Table 2.1), an important aspect is how to organize a Prostate Cancer Unit.

**Table 2.1** Ten good reasons to support a Prostate Cancer Unit

1	PC is a very complex disease, involving diagnostic and therapeutic multidisciplinary decisions
2	Optimal and well-balanced information for PC cases requires a shift from a monodisciplinary to a synergic multidisciplinary approach
3	As Breast Cancer Units for breast cancer, multi-professional Prostate Cancer Units for PC are the best answer to manage patients and the complexity of their disease
4	Prostate Cancer Units offer the patient a complete, simultaneous, unambiguous, polispecialistic counseling on his disease, avoiding him to tour to different physicians
5	An MDT can provide a continuum of care for patients through early diagnosis, treatment planning in all stages of the disease, follow-up, prevention, and management of complications
6	Prostate Cancer Units connect a team whose members have specialist training in PC, spend relevant amount of time in working with PC, and have a high-level scientific qualification on PC
7	In Prostate Cancer Units the MDT can better propose the appropriate management options on the basis of the pathological reports, clinical and biochemical assessments, and the risk benefit evaluation
8	Prostate Cancer Units are in possession of or have easy direct access to all requirements for a complete, adequate, and high-level management of all phases of PC
9	Patients referred to a Prostate Cancer Unit receive more balanced information and decisions obtained in an open and interactive fashion, with all clinical specialists present at the same time
10	Patients referred to a Prostate Cancer Unit experience easier availability, enhanced coordination, and reduced delays to conclude the diagnostic and therapeutic item

Quality cancer care is complex and depends upon careful coordination between multiple treatments and providers and upon technical information exchange and regular communication flow between all those involved in treatment (including patients, specialist physicians, other specialty disciplines, primary care physicians, and support services) [15]. Traditional cancer treatment strategies began with individual consultations initiated by the internist or family practitioner with the relevant cancer specialist and subsequent patient referral to other specialists for specific cancer care treatments. An MDT comprises healthcare professionals from diverse disciplines whose goal of providing optimal patient care is achieved through coordination and communication with one another. Typically, MDT within oncology is disease focused, for example, head and neck, breast, thoracic, or genitourinary. The core disciplines integral to the multidisciplinary approach to cancer care are medical oncology, radiation oncology, surgical oncology, cancer site specialist, primary care, and nursing [16]. This type of structure ensures that the patient is informed and guided during and after treatment, from inpatient status to outpatient status, moving patient care prospectively. The benefits of a multidisciplinary approach to treating cancer may be particularly important in PC where there are so many treatment options available today including surgery, radiotherapy, hormonal therapy, focal therapy, or active surveillance and watchful waiting [17].

As suggested by Valdagni et al., a Prostate Cancer Unit is a place where men can be cared for by specialists in PC working together within a multi-professional team [18].

From October 2010 our hospital accepted the institution of a Prostate Cancer Unit. Our Prostate Unit was established in large size hospital, covering a population of more than 300,000 people.

The main aim of the unit was to provide a continuum of care for patients through early diagnosis, treatment planning in all stages of the disease, follow-up, prevention, and management of complications related to PC. Patients that can be followed by the Prostate Cancer Unit include cases in which the diagnosis is as yet unestablished but whose could benefit for an early diagnosis program; cases in which the diagnosis of PC is confirmed and whose can be considered for treatment planning; cases following primary treatment for discussion of further care; and cases in follow-up after or during treatment.

Following indications from previous experiences [18], we accepted some basic requirements for our Prostate Cancer Unit:

1. The unit is represented by a core team whose members have a specialist training in prostate disorders, spend a relevant amount of their time working with PC, undertake continuing professional education, and have a high-level scientific production on PC experimental and clinical research.
2. The core team include: two coordinators (one referred for the diagnostic and one for the clinical therapeutic management of PC) from any specialist of the team; urologists (spending 50 % or more of their working time in prostate disease, managing at least 100 PC cases per year, and carrying out at least 25 radical prostatectomies per year and at least one prostate clinic per week); urologist/radiologist dedicated to prostate biopsies (spending more than 70 % of his working time in prostate biopsies and performing more than 400 prostate biopsies per year); uropathologist (spending 30 % or more of his working time in prostate disease and analyzing at least 250 sets of prostate biopsies per year); radiation oncologists (spending 50 % or more of their working time in prostate disease and carrying out radiotherapy on at least 25 PC per year); medical oncologists (spending 30 % or more of their working time in prostate disease and managing at least 50 PC cases per year); and radiologists (with main experience in all aspects of prostate imaging, one using multiparametric magnetic resonance and ultrasonography and one as expert in nuclear medicine, and spending 50 % or more of his working time in prostate disease). Additional professional services also include a sexologist/andrologist, psychologist, palliative care specialist, and a clinical trials coordinator.
3. The Prostate Cancer Unit must be of sufficient size (number of specialists) to have more than 100 new diagnosed cases of PC coming under its care each year.
4. Research and scientific production is an important part of the activity of the Prostate Cancer Unit, such as also participation in clinical trials for the management of PC.
5. All specialists of the Prostate Cancer Unit core team organize and participate in multidisciplinary meetings every 10–14 days. Cases referred to the unit are discussed during the meeting. The MTD will propose the appropriate management options on the basis of pathological reports, clinical and biochemical

assessments, and risk benefit evaluations. The final decision will be made by patients informed by one of the clinicians.

6. The Prostate Cancer Unit is in possession of or has easy direct access to all requirements for a complete, adequate, and high-level management in all phases of PC.

The inclusion of radiologists in the core team of this unit is justified by the growing role of a morphologic-functional imaging (multiparametric magnetic resonance, PET-CT) for the management of PC. These two imaging tools have proven to be useful in the management of various aspects of PC natural history [19, 20].

A SEER-based study of more than 85,000 men with PC evidenced that in the general clinical practice the treatment decision had little relation to patient preferences but were predominantly associated with the specialty of the counseling clinician [21]. The primary advantage for patients referred to MTD organized into a Prostate Cancer Unit is to receive balanced information and decisions obtained in an open and interactive fashion, with all clinical specialists present at the same time. In the decision-making process for men with PC, this is one area in which the multidisciplinary approach can improve patient care.

The MTD approach guarantees a higher probability for the PC patient to receive adequate information on the disease and on all possible therapeutic strategies, balancing advantages and related side effects.

From the available evidences, patients with different cancers who are managed by MDT can experience better clinical outcomes [22, 23]. One of the first advantages described by patients referred to the Prostate Cancer Unit is an easier availability, enhanced coordination, and reduced delays to conclude the diagnostic and therapeutic item. This is likely to result in a better outcome for PC patients as early intervention is particularly crucial in cancer management [23].

The future of PC patients relies on a successful multidisciplinary collaboration between experienced physicians which can lead to important advantages in all the phases and aspects of PC management (Table 2.1).

The establishment of Prostate Cancer Units could provide financial saving, avoid inappropriate procedures, and improve outcomes delivering high-quality care to patients. These aspects are particularly relevant considering the high incidence of PC as one of the most important medical problems facing the male population.

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