PROSTATE CANCER: CLINICAL AND HEALTHCARE QUALITY INDICATORS EVOLUTION PROVIDED BY A HOSPITAL-BASED CANCER REGISTRY

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INTRODUCTION

Prostate cancer has been increasing its incidence since the beginning of the 1990s, coinciding with the diffusion of the prostate specific antigen (PSA) test, until, in many countries, it has become the first neoplasia among men. The progressive introduction of the PSA test has also accompanied changes in the stage of the diagnosed tumours and, as a consequence, in the survival and global mortality for this cancer.

The Hospital del Mar Cancer Registry (RTHMar) has specialised as an instrument for improvement in oncological health care quality, with both clinical and management goals. Through a series of indicators obtained periodically, the RTHMar allows the monitoring of the quality of the health care processes and the evaluation of the clinical repercussion produced by the diagnostic and therapeutic changes.

AIM

To analyse the evolution of prostate cancers registered by the RTHMar during a 14-year period, and to appraise the impact of PSA introduction as well as new oncological treatments.

METHODS

All of the prostate cancers (n=910) diagnosed and/or treated in our hospital during the 1992-2005 period were selected. The main indicators provided by the RTHMar (stage, Gleason, type of treatment, mortality, survival, etc) were compared for four periods 1992-96, 1997-99, 2000-02 and 2003-05. Information about PSA was obtained by linking to the hospital laboratory data base and selecting the PSA value prior to the beginning of the date of treatment. From PSA, Gleason and clinical stage we calculated the risk of extension of the localised neoplasms (stages II-III). Relative survival was compared between two periods, before and after 1999, when radiotherapy plus hormonotherapy was introduced.

RESULTS

Mean age diminished from 73 to 69 years between the first and the last period (p<.001). The tumours diagnosed by symptoms went from 43.5% to 7.7%. The lack of pathological confirmation went from 6.5% to 1.6% (p<.01). Patients with metastases at the diagnosis moment decreased from 35.6% to 7.2% and the median of PSA passed from 34 ng/ml to 8 ng/ml. However, there were no significant changes in the distribution of histologic differentiation (Gleason score). In localised neoplasm no significant changes in the risk of extension evolution were observed (p=.318), but there was a progressive increase in the indication of radiotherapy with or without hormonotherapy (4.2% vs 50.5%) and also a significant decrease of surgical treatments (87.5% vs 44.2%).
The 1-year mortality from diagnosis diminished from 15.6% to 5.5%. There was an improvement in the 5-year overall relative survival, before and after 1999, that passed from 67.3% (IC95%: 60.2-75.2) to 92.9% (IC95%: 87.3-98.9). The same trend was observed among patients with localised tumours, even though it did not reach statistical significance.

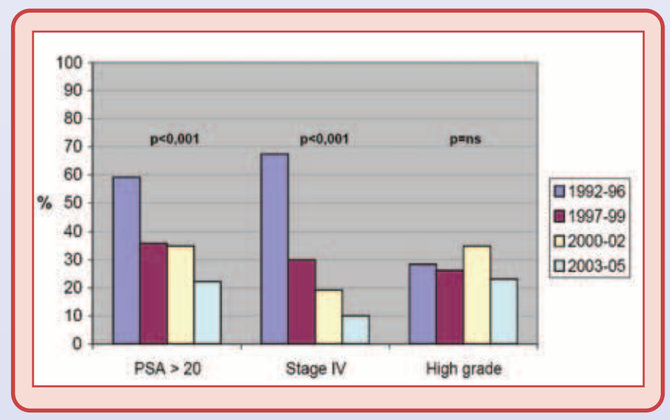

Table I. Patient and process characteristics

	1992 - 1996 n (%)	1997 - 1999 n (%)	2000 - 2002 n (%)	2003 - 2005 n (%)	
Number of cases	168	190	241	311	
Diagnosis & treatment in the Hospital	137 (81.5%)	137 (72.1%)	148 (61.4%)	176 (56.6%)	p<0.001
Age (mean years)	73	71	71	69	p<0.001
Catchment area origin	95 (56.5%)	103 (54.2%)	174 (72.2%)	198 (63.7%)	p<0.05
Attraction index	-	27.5%	38.0%	36.0%	NS
Admission through the emergency department	59 (35.3%)	27 (14.4%)	21 (8.7%)	35 (11.3%)	p<0.001
Type of presentation					
Symptomatic	73 (43.5%)	15 (7.9%)	22 (9.1%)	24 (7.7%)	
Finding or screening	48 (28.6%)	44 (23.2%)	65 (27.0%)	157 (50.5%)	p<0.001
Unknown	47 (28.0%)	131 (68.9%)	154 (63.9%)	130 (41.8%)	
No pathological confirmation	11 (6.5%)	5 (2.6%)	6 (2.5%)	5 (1.6%)	p<0.01

Table II. Tumour characteristics

	1992 - 1996 n (%)	1997 - 1999 n (%)	2000 - 2002 n (%)	2003 - 2005 n (%)	
Clinical stage					
I	3 (1.8%)	2 (1.1%)	1 (0.4%)	4 (1.3%)	
II	17 (10.1%)	45 (23.7%)	106 (44.0%)	182 (58.5%)	
III	7 (4.2%)	8 (4.2%)	17 (7.1%)	38 (12.2%)	p<0,001
IV	56 (33.3%)	25 (13.2%)	32 (13.3%)	30 (9.6%)	
Unknown	85 (50.6%)	106 (55.8%)	74 (30.7%)	13 (4.2%)	
Differentiation (from Gleason score)					
Well differentiated	68 (50.7%)	82 (46.6%)	61 (27.6%)	123 (41.1%)	
Moderately differentiated	28 (20.9%)	48 (27.3%)	83 (37.6%)	107 (35.8%)	NS
Poorly / Undifferentiated	38 (28.4%)	46 (26.1%)	77 (34.8%)	69 (23.1%)	
PSA value at diagnosis					
PSA registered in the hospital	127 (75.6%)	106 (55.8%)	166 (66.9%)	203 (65.3%)	NS
median (ng/ml)	34	14	10	8	p<0,001
PSA > 20 ng/ml	75 (59.1%)	38 (35.8%)	58 (34.9%)	45 (22.2%)	p<0,001
Risk of extension (stages II-III)					
Low	3 (13.0%)	8 (15.1%)	15 (12.2%)	33 (15.1%)	
Intermediate	8 (34.8%)	25 (47.2%)	58 (47.2%)	109 (49.8%)	NS
High	12 (52.2%)	20 (37.7%)	50 (40.7%)	77 (35.2%)	
Previous tumour in other primary site	10 (6.0%)	17 (8.9%)	29 (12.0%)	22 (7.1%)	NS

Table III. Treatment

	1992 - 1996 n (%)	1997 - 1999 n (%)	2000 - 2002 n (%)	2003 - 2005 n (%)	
Radical intention					
Within all cases	67 (40.6%)	112 (61.5%)	124 (54.1%)	203 (77.2%)	p<0.001
Within localised tumours	21 (87.5%)	45 (88.2%)	98 (79.7%)	197 (90.0%)	NS
Type of treatment					
Surgery (+ adjuvant)	69 (47.3%)	91 (60.3%)	85 (42.1%)	97 (39.4%)	
Radiotherapy (+ hormonotherapy)	1 (0.7%)	24 (15.9%)	46 (22.8%)	111 (45.1%)	
Hormonotherapy alone	73 (50.0%)	32 (21.2%)	55 (27.2%)	32 (13.0%)	p<0.001
Chemotherapy (+ other)	3 (2.1%)	4 (2.6%)	16 (7.9%)	6 (2.4%)	
Tumours committee presentation	18 (10.7%)	26 (13.7%)	92 (38.2%)	107 (34.4%)	p<0.001
Interval diagnosis to surgery					
median (days)	112	157	129	146	p<0.05
> 6 months	8 (18.6%)	16 (25.4%)	14 (19.2%)	26 (29.2%)	NS
Interval diagnosis to hormonotherapy					
median (days)	21	21	16	35	p<0.01
> 30 days	25 (34.3%)	29 (39.2%)	32 (31.3%)	56 (53.4%)	p<0.05

Table IV. Mortality and survival

	1992 - 1996 n (%)	1997 - 1999 n (%)	2000 - 2002 n (%)	2003 - 2005 n (%)	
Mortality					
1-year from diagnosis	26 (15.6%)	19 (10.1%)	17 (7.2%)	17 (5.5%)	p<0.001
1-month from treatment	4 (2.4%)	3 (1.6%)	3 (1.3%)	1 (0.3%)	NS
Overall relative survival*	1992 - 1998		1999 - 2005		
1-year	90.2% (CI: 86.1-94.5)		97.8% (CI: 95.8-99.8)		p<0.05
5-year	67.3% (CI: 60.2-75.2)		92.9% (CI: 87.3-98.9)		p<0.001
Stages II-III relative survival					
1-year	99.4% (CI: 94.7-103)		100.5% (CI: 98.8-102.2)		NS
5-years	85.3% (CI: 71.4-102)		101.8% (CI: 95.1-109)		NS

*Relative survival calculated by means of WAERS program. Institut Català d'Oncologia.

CONCLUSIONS

The progressive increase of prostate cancer early detection by the determination of the PSA is clearly correlated with the changes observed over the period. Decreases in age and stage, but not in Gleason grade, and relative survival of localised tumours around 100% are consistent with international data. The overall survival increase could be explained by the different clinical stages distribution, but also due to radiotherapy and hormonotherapy treatment implementation in patients with intermediate to high risk prostate cancer.

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