

Secular trends in survival in Prostate Cancer (PC) (1992-2005): impact of PSA implementation and HT+RT treatment introduction in a reference area of Barcelona. An observational study

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Introduction

Following a number of advances in the management of prostate cancer, including introduction of the PSA, and stage-based treatment modalities, there have been reports of declines in mortality in several series in different countries¹.

The impact of radiotherapy/hormones (RT+HT) in stage II/III in survival trend has not been properly studied.

Objectives

- To investigate the secular trends in PC mortality during the last 13 years in a tertiary hospital serving a well-defined area of Barcelona, analysing the changes over time and their correlation with PSA implementation and clinical data
- To analyse the impact in relative survival of the introduction of the combined modality of RT+HT in the treatment of stage II-III PC.

Material and methods

The Hospital del Mar Cancer Registry (Barcelona) data base was used to identify patients with histological confirmation of prostate cancer from 1992 to 2005.

Data prospectively recorded:

- Stage (Clinical and pathological)
- PSA at diagnosis
- Gleason score
- Treatment modality
- Vital status

For comparisons, patients were grouped in 4 periods: 1992-96, 1997-99, 2000-02, and 2003-2005. Relative survival (that is, the ratio between the observed survival and the survival of the general population of same age and sex) was compared between two periods, before and after 1999, when RT+HT was introduced.

Results

897 patients were analysed.

- Mean age at diagnosis significantly decreased from 73 in 1992-96 to 69 in 2003-05 ($p < .001$).
- Median PSA value at diagnosis decreased from 35ng/ml in 1992-96 to 14ng/ml in 1997-99 ($p < .001$).
- Metastatic disease at diagnosis changed from 67% before 1997 to 29% in 1997-99.
- No significant trends in pathological grades with time.
- For patients having stage II and III cancer:
No significant changes in risk distribution ($p = .318$) throughout the study period.

Since 1999 there is a progressive increase in indications of RT with or without HT in stages II and III with a significant decrease in the indication of surgery in the same study period, from 86.4% to 49.1%.

- There is an improvement in overall relative survival at 5 years before and after 1999, from 67.3% (CI: 60.2-75.2) to 92.9% (CI: 87.3-98.9). The same tendency was found in patients with stage II and III cancer coincidentally with the implementation of HT+RT.

Decrease in age and stage, but not in Gleason grade, and relative survival of localized tumors around 100% are consistent with US data^{2,3}.

Table 1. Clinical characteristics at diagnosis according to study periods.

	1992 - 1996	1997 - 1999	2000 - 2002	2003 - 2005
Number of cases	168	190	241	311
Age (mean) *	72,9	70,9	70,8	68,7
PSA at diagnosis				
Median (ng/ml) *	34	14	10	8
% with PSA > 20 ng/ml *	59,1	35,8	34,9	22,2
Gleason Grade (%)				
2-6	50,7	46,6	27,6	41,1
7	20,9	27,3	37,6	35,8
8-10	28,4	26,1	34,8	23,1
AJCC Stage (%) *				
0	0	2,1	4,6	14,1
I	1,8	1,1	0,4	1,3
II	10,1	23,7	44	58,5
III	4,2	4,2	7,1	12,2
IV	33,3	13,2	13,3	9,6
Unknown	50,6	55,8	30,7	4,2
Extension risk, tumours stage II or III (%)				
Low	13	15,1	12,2	15,1
Medium	34,8	47,2	47,2	49,8
High	52,2	37,7	40,7	35,2

* $p < 0,001$

Conclusions

- There is an increase in survival of patients with PC during the last years in this Barcelona area coincidentally with a shift towards lower stages and PSA levels at presentation, suggesting an influence of early detection by PSA.

- In addition to other factors, changes in death rates since 1999 could be explained by secular variations in the treatment of prostate cancer, particularly the implementation of HT+RT in patients with intermediate and high risk PC.

Figure 1. Tumor characteristics at diagnosis according to study periods.

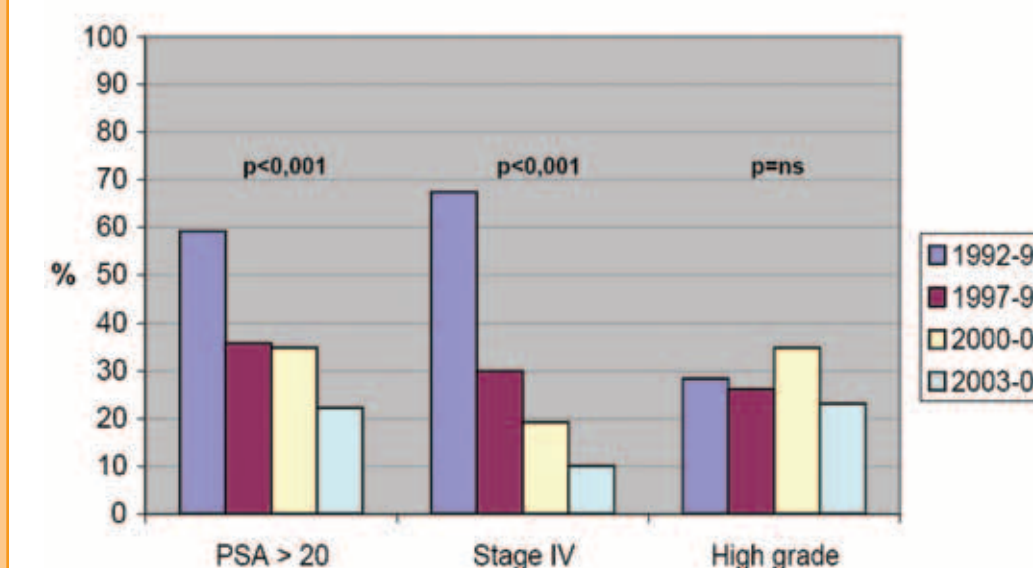


Figure 2. Relative survival of patients with prostate cancer, all stages.

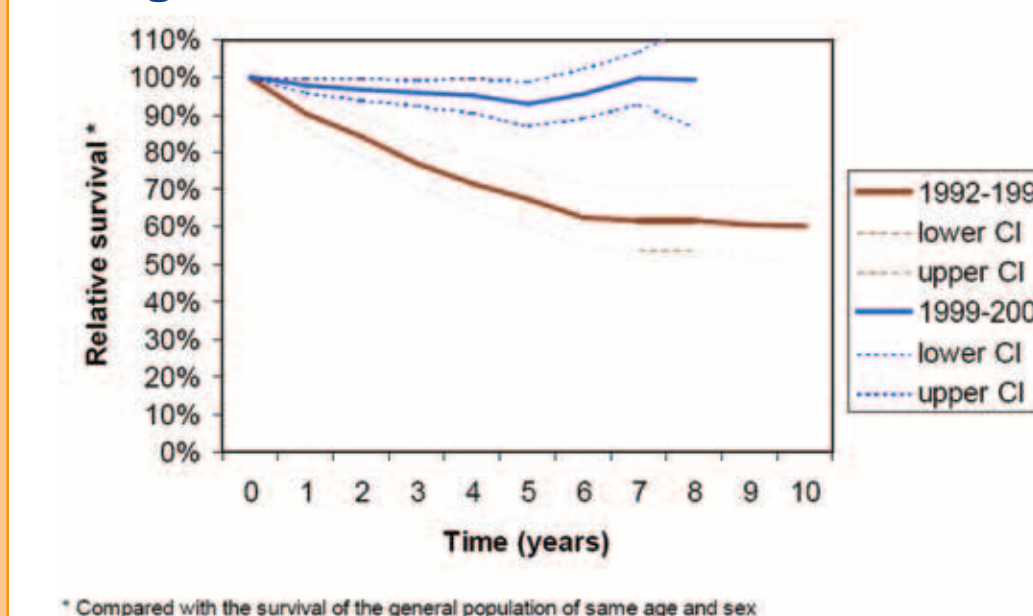


Figure 3. Stage II and III prostate cancer. Relative survival.

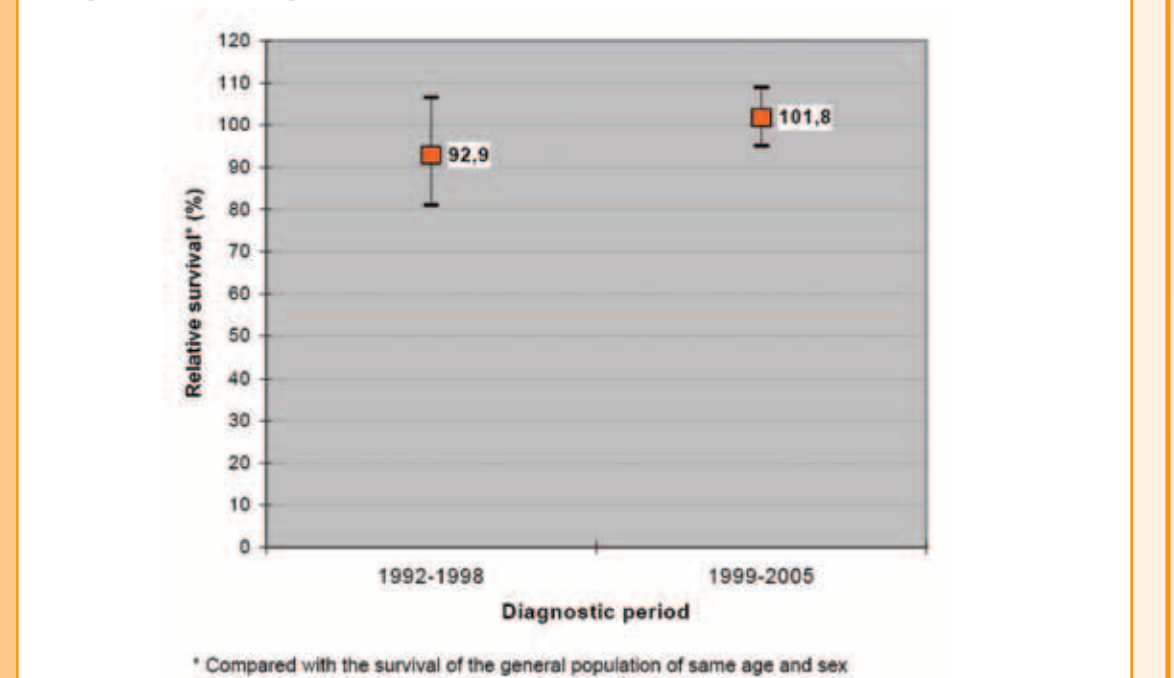
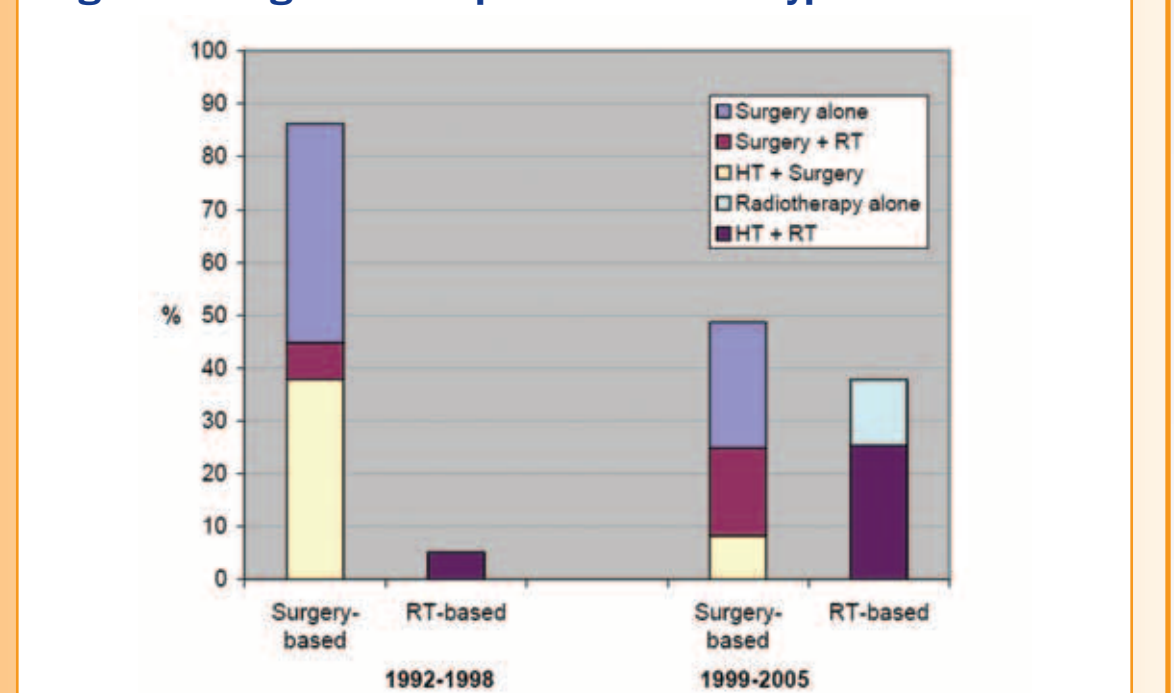


Figure 4. Stage II and III prostate cancer. Types of treatment.



References

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