

What is the optimal timing of PSA follow-up after radical prostatectomy?

Stepan Vesely, Ladislav Jarolim, Katerina Duskovala, Marek Schmidt, Pavel Dusek, Marko Babjuk

Charles University in Prague - 2nd Faculty of Medicine, Motol Hospital, Dept. of Urology, Czech Republic

Introduction

Due to a lack of scientific data, the literature contains little guidance in regard to appropriate number and timing of prostate specific antigen (PSA) measurement after radical prostatectomy for prostate cancer.

Most of the urologists perform the first PSA measurement at 3 months after the surgery.

Do we have a scientific evidence for such an approach?

This prompted us to investigate in detail the early postoperative kinetics of PSA in a cohort of men who underwent very intensive follow-up after the surgery.

Our goal was to determine the ability of postoperative PSA to predict biochemical recurrence (BR) of prostate cancer in relation to time distance from the surgery.

Materials & Methods

- a total of 668 men treated with radical prostatectomy for localized prostate cancer
- ultrasensitive PSA measurements performed postoperatively on days 14, 30, 60 and 90 and at three monthly intervals thereafter
- all the PSA tests were performed using the Immulite third-generation PSA assay (Diagnostic Products Corp, Los Angeles, California; lower detection limit 0.003ng/mL)
- mean follow-up 38 months (range 6-114)
- BR = PSA \geq 0.2 ng/ml
- exclusion criteria:
 - prior or adjuvant hormonal therapy
- cutoff values were calculated using the partition platform of the SAS statistical software JMP 6 (SAS Institute, Cary, NC, USA)

Results

Fig. 1 – The course of PSA after radical prostatectomy in 668 patients treated for prostate cancer. (BR – biochemical recurrence, free – free of biochemical recurrence)

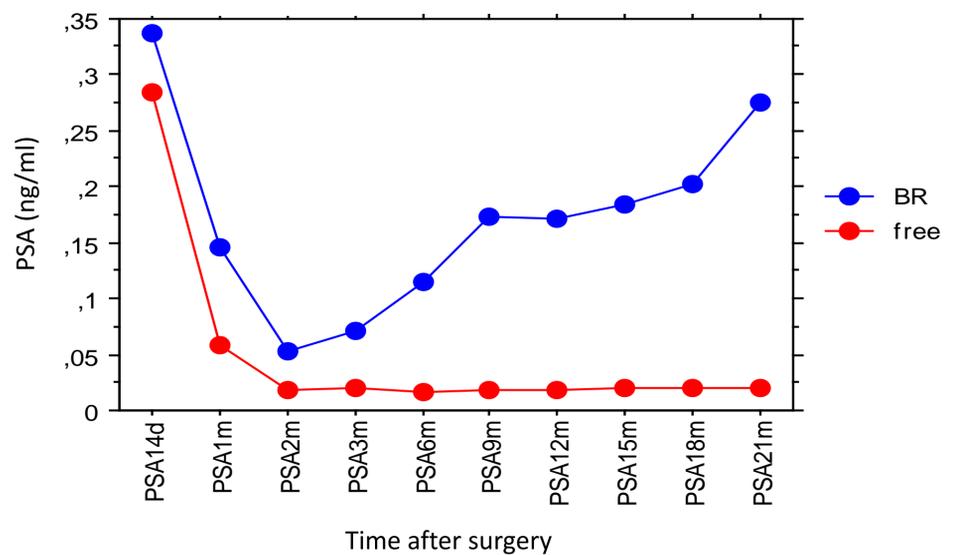


Table 1 – Values of PSA measured before and after radical prostatectomy in patients according to the appearance of BR during the follow-up. (Mann-Whitney test)

Parameter	BR	BR-free	P - value
n	236 (35%)	432 (65%)	
Preoperative PSA (ng/ml)	10.68 (7.30)	7.73 (4.49)	<0.001
PSA nadir (ng/ml)	0.06 (0.11)	0.01 (0.01)	<0.001
Time to PSA nadir (months)	2.01 (1.28)	2.64 (2.07)	<0.001
PSA day 14 (ng/ml)	0.39 (0.36)	0.25 (0.22)	0.012
PSA day 30 (ng/ml)	0.18 (0.51)	0.05 (0.13)	<0.001
PSA day 60 (ng/ml)	0.08 (0.13)	0.02 (0.04)	<0.001
PSA day 90 (ng/ml)	0.09 (0.16)	0.02 (0.05)	<0.001
PSA day 180 (ng/ml)	0.14 (0.24)	0.01 (0.02)	<0.001

Table 2 – Predictive parameters of PSA measured in different time distance from the surgery using particular calculated PSA cutoff values. (PPV – positive predictive value, NPV – negative predictive value, AUC – area under the curve)

Time distance from surgery	PSA cutoff (ng/ml)	PPV	NPV	AUC
14 days	0.53	43%	74%	0.59
30 days	0.05	66%	80%	0.71
60 days	0.03	83%	78%	0.75
90 days	0.04	83%	81%	0.76
180 days	0.04	89%	83%	0.79

Conclusions

The level of serum PSA after radical prostatectomy give us a valuable information about the outcome of the surgery even earlier than at 3 months

Such an information may help in the early postoperative decision making process regarding the need of adjuvant therapy