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Seminal vesicle sparing robotic radical prostatectomy – no different interpretation of postoperative PSA follow-up required?

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Now in *Swiss Medical Weekly*, Burkhardt et al. present a retrospective study on the impact of seminal vesicle sparing robotic radical prostatectomy (SVRP) on postoperative prostate-specific antigen (PSA) levels measured with an ultrasensitive immunoassay [1]. The rationale of SVRP is to protect nerves that are responsible for erectile function and that are located close to the tips of the seminal vesicles. Because these remaining tips are known to produce PSA and PSA testing has become more sensitive during recent years, the authors aimed to reassess the influence of SVRP on postoperative PSA.

Burkhart et al. analysed postoperative PSA values and biochemical recurrence in patients after SVRP, compared with a group who underwent standard robotic assisted laparoscopic radical prostatectomy (sRALP). Only patients with histologically proven negative margins (R0) and negative lymph node status (pN0) were included in this retrospective analysis. The lowest (PSA nadir, usually 6 weeks after surgery) and the latest (median 31.4, range 16.4–43.8 months after surgery) PSA levels available during follow-up were analysed.

Overall, 102 patients treated between December 2013 and December 2015 were included. Whereas the vast majority of patients undergoing SVRP (36 of 39) had a PSA value <10 ng/ml, the 63 patients in the sRALP group had higher rates of unfavourable characteristics including age, PSA concentration, Gleason score, pathological T stage and tumour diameter.

The authors found no significant difference between the groups for the median postoperative PSA nadir and the latest PSA level. Moreover, the proportion of patients not reaching a PSA value <0.01 ng/ml did not differ significantly. The highest PSA value during follow-up after SVRP was 0.15 ng/ml, and thus none of the patients had a biochemical recurrence (threshold 0.2 ng/ml). In contrast, biochemical recurrence was found in two patients after sRALP. The authors conclude that oncological follow-up in terms of postoperative PSA is not significantly different after SVRP compared with sRALP.

This is in line with a previous study, performed in 2003, in which less sensitive PSA assays were used after SVRP [2].

So far, there are few data comparing SVRP with sRALP. Most of the studies retrospectively evaluated factors in pathology reports that would allow identification of men who might best qualify for this technique [3–6]. Reis et al. showed that almost 99% of patients with a Gleason score ≤6, PSA level <4 ng/ml and with <12% positive cancer cores (12-core biopsy) do not require a seminal vesiculectomy. Importantly, active surveillance rather than radical prostatectomy is primarily recommended in such patients nowadays. Another study found that a PSA level ≥10 ng/ml and a prostate volume ≤41 ml are associated with seminal vesicle invasion [5].

Prospective studies reporting on the oncological outcome of SVRP compared with sRALP are sparse and limited by a short follow-up [7, 8]. In 2017, Gilbert et al. published the first randomised trial in the field, focusing on functional and oncological outcomes after SVRP. They enrolled 140 patients with localised prostate cancer and low risk (<5%) for seminal vesicle invasion based on the following disease characteristics: Gleason 6 and T1c/T2N0M0 and PSA <10 ng/ml and <1/2 cores affected; or Gleason 7 and T1c/T2N0M0 and PSA <6 ng/ml and <1/3 positive cores. Oncological outcomes including PSA recurrence did not differ significantly between SVRP and standard prostatectomy, which also supports the results of the present analysis. Despite the clear advantages of a randomised controlled trial, the follow-up of 1 year was very short compared with the present study.

The main reason to perform SVRP is to improve postoperative functional outcomes. Based on the current literature, an advantage over sRALP is not proven. The study by Burkhardt et al. did not include any functional outcome data. Some authors have described better postoperative urinary continence rates [9] and improved erectile function [10]. In contrast, the randomised trial by Gilbert et al. showed no statistical difference in recovery of continence and sexual function measured using the EPIC-26 questionnaire. Thus, as stated by Burkhart et al., "the books on the functional impact of preserving the seminal vesicles are not closed yet."

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The authors should be congratulated on collecting data of 102 men who met the strict inclusion criteria (R0 resection, pN0) for this retrospective analysis and publishing the results on a topic with only limited data currently available. The study was performed retrospectively and has therefore, as the authors pointed out, limitations. One point to consider is that follow-up for biochemical recurrence was still relatively short. Moreover, the two groups were neither randomised nor matched, and differed significantly in several relevant prognostic parameters. PSA levels after SVRP did not differ significantly from those of a group with worse prognostic factors and including two patients who developed biochemical recurrence. Therefore, the question arises whether a control group with equal prognostic factors might have lower PSA values than patients after SVRP. However, from a pragmatic point of view, the data confirm that the same rules apply to postoperative PSA monitoring after SVRP as after sRALP, even in the era of ultrasensitive PSA assays.

SVRP cannot be considered as a standard therapy for patients with prostate cancer because of the lack of high-level evidence with regard to the potential benefit of improved functional outcome and, more importantly, with regard to oncological outcome. Further studies in this field are required and the authors should be encouraged to follow-up this project with a prospective clinical trial.

Potential competing interests

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