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AIM

Standard treatment for biochemical relapse (BCR) after radical prostatectomy (RPE) in patients with histologically negative lymph nodes consists of salvage radiotherapy to the prostate bed only. However, up to one third of these treatments do not result in long-lasting biochemical control¹.

This study was conducted to report the proportion of patients with BCR showing positive findings on PSMA PET-CT, leading to substantial changes of radiation target definition and dose prescription.

METHOD

We retrospectively analyzed 97 patients with BCR after RPE referred to our clinic between 01/2021 and 12/2023 to receive salvage radiotherapy to the prostate bed.

- No patient had histologically verified node positive disease after RPE.
- All patients received a PSMA PET-CT prior to treatment planning.
- In case of PET negative disease standard salvage radiotherapy to the prostate bed was performed.
- PET positive findings were grouped in recurrences in the prostate bed, pelvic nodes, bone metastases or in multiple sites and assigned to patients pretreatment PSA levels.
- Radiotherapy dose prescription and target definition were adjusted according to the positive findings.

RESULTS

Patient number:	97
Median number of dissected lymph nodes at RPE:	5
Median postoperative PSA:	0,5 ng/ml
Median preoperative PSA:	7,7 ng/ml
Median time from surgery to RT	30 months
Mean ISUP	3
Pathological Staging:	
pT2a-T2c	63,9%
pT3a	19,6%
pT3b	16,5%

Table 1: Patients characteristics

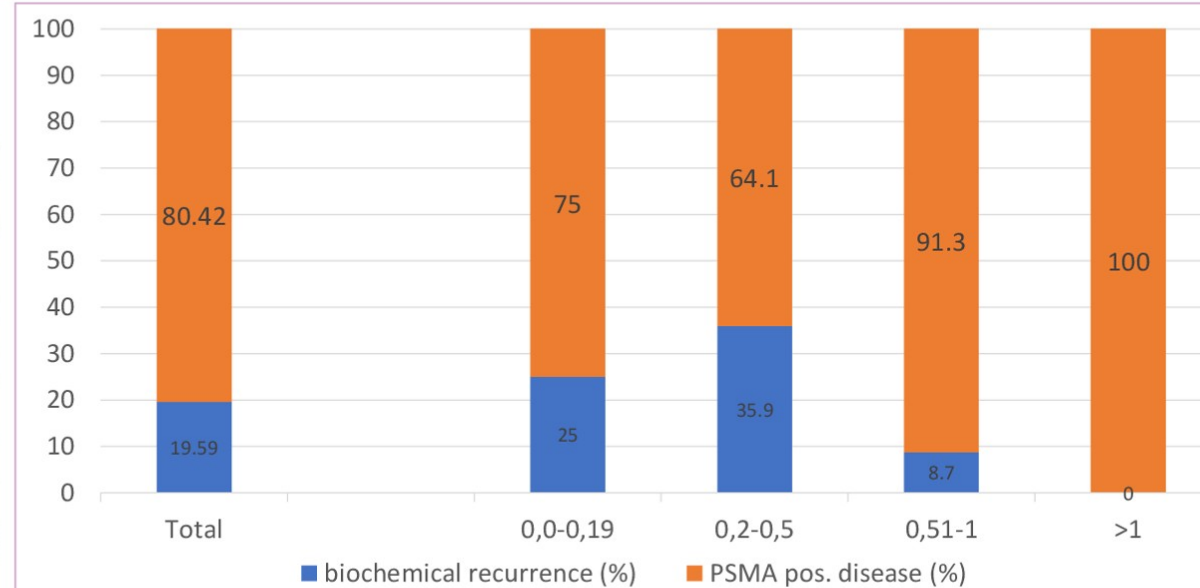


Fig. 1: PSMA positive disease according to PSA levels (in ng/ml) prior to salvage radiotherapy (in%)

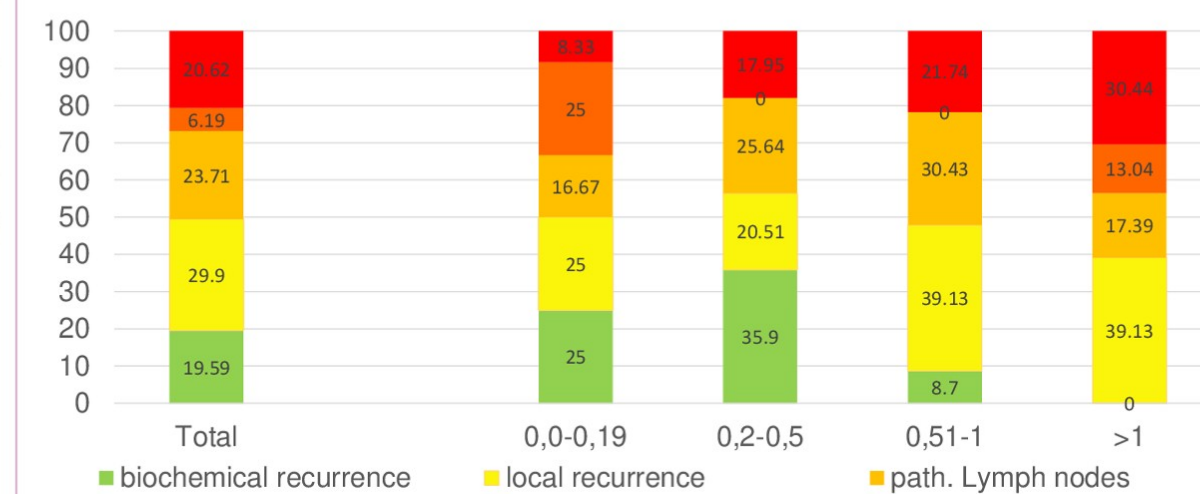


Fig. 2: location of PSMA positive sites according to PSA levels (in ng/ml) prior to salvage radiotherapy (in%)

Detection rate:

Overall PET detection rate was 80,42%. There was an increase in this rate across the predefined PSA ranges with 100% positive findings at PSA levels >1ng/ml. But even low PSA levels <0,5 ng/ml showed presence of prostate cancer on PET in >60% of patients (Fig.1).

Recurrence sites:

Raising PSA levels were associated with a higher rate of recurrence in positive lymph nodes, bone metastases or multiple sites (Fig. 2).

PSMA-related changes in treatment strategy:

The findings on PET-CT lead to:

- no change in the therapeutic approach in 19,6%
- minor changes (dose escalation without adjustment of target definition) in 29,9%
- major changes (dose escalation and adaption of target definition) in 50,5% of all patients

CONCLUSIONS

- In this cohort of patients with predominantly moderate risk factors (mean ISUP 3, PSA 0,5ng/ml, and mainly T2a to T2c) molecular imaging led to major changes in the treatment in most patients.
- Even low postsurgical PSA levels <0,5ng/ml result in pathologic findings in a majority of cases.

REFERENCES

1 Pollack A. et al. The addition of androgen deprivation therapy and pelvic lymph node treatment to prostate bed salvage radiotherapy (NRG Oncology/RTOG 0534 SPPORT): an international, multicentre, randomised phase 3 trial . Lancet 2022; 399: 1886–901