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18F-DCFPyL PSMA PET/CT Enhances Detection of Occult Recurrence and Refines Management in Post-Prostatectomy Biochemical Failure

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ABSTRACT

Biochemical recurrence (BCR) is observed in about 20-50% of individuals with localized prostate cancer (PC) after undergoing radical prostatectomy (RP). Standard imaging methods generally fail to identify early relapse, either local or systemic, when PSA concentrations are low. The use of 18F-DCFPyL PSMA positron emission tomography/computed tomography (PET/CT) provides improved diagnostic precision and detection sensitivity in recurrent cases. This research investigates how effectively 18F-DCFPyL PET/CT identifies early BCR following RP and evaluates its influence on clinical decisions and treatment adjustments. In a forward-looking study, 85 men with BCR (PSA range 0.2-2.0 ng/mL) and unremarkable findings on traditional imaging were assessed using 18F-DCFPyL PET/CT. Detection rates (DRs) were compared with clinical parameters such as PSA levels and PSA doubling time (DT-PSA). Identified foci were classified as local recurrence, lymphatic spread, bone lesions, or visceral metastasis. Therapeutic approaches were revised in light of PET/CT outcomes. 18F-DCFPyL PET/CT revealed recurrent lesions in 53% of subjects. DRs were 31.3%, 60%, and 77.8% in patients with PSA levels below 0.5, between 0.5-1, and above 1 ng/mL, respectively. Shorter DT-PSA intervals (<6 months) showed higher DRs (61.5%). Detected lesions were categorized as 22.2% local recurrence, 51.1% nodal involvement, 20% skeletal, and 6.7% visceral disease. Receiver operating characteristic (ROC) analysis indicated 0.55 ng/mL and 9.2 months as the optimal PSA and DT-PSA thresholds. Based on PET-positive results, treatment plans were altered in 84.4% of cases. 18F-DCFPyL PET/CT demonstrates strong capability in identifying recurrent PC at minimal PSA values and substantially influences therapeutic management. These results endorse its integration into clinical guidelines for early-stage BCR assessment.

Keywords: Prostate cancer, Biochemical recurrence, Radical prostatectomy, PSMA, 18F-DCFPyL PET/CT

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Introduction

Roughly 20-50% of men with localized prostate cancer (PC) experience biochemical relapse (BCR) after radical prostatectomy (RP) [1, 2]. BCR is typically characterized by a prostate-specific antigen (PSA) measurement surpassing 0.2 ng/mL [3]. Imaging techniques such as contrast-enhanced computed tomography (CT), pelvic magnetic resonance imaging (MRI), and bone scintigraphy frequently fail to reveal early local or metastatic recurrence at lower PSA readings, creating diagnostic uncertainty [4-6]. Accordingly, treatment strategies often adhere to global recommendations [7-9], which usually include salvage radiation therapy targeting the prostate bed [10]. This approach achieves around a 56% 5-year local control rate [11, 12], though recurrence beyond the irradiated field remains common [13, 14].

The preferred imaging tool for patients presenting with BCR and minimal PSA remains a subject of debate. Traditional modalities exhibit inferior sensitivity compared with PET/CT for recurrence detection. PET/CT imaging, using a variety of radiotracers, has proven advantageous in identifying recurrence earlier and is now increasingly applied in PC evaluation [15]. Tracers such as 18F/11C-choline and 18F-fluciclovine are well-established [16, 17]; however, they are gradually being replaced by PSMA-based radiotracers, which provide

markedly higher specificity and sensitivity, particularly in early relapse cases [18]. Among these, fluorine-18-labeled PSMA compounds have gained attention due to their diagnostic superiority and reliability in low-PSA contexts [19, 20].

Compounds like 18F-DCFPyL, 18F-PSMA-1007, and 68Ga-PSMA-11 are functionally related, sharing a high affinity for the extracellular PSMA domain. These ligands have proven highly effective in identifying PC across different stages, with uptake levels linked to tumor aggressiveness [21, 22]. 18F-DCFPyL, in particular, binds with strong specificity and has shown exceptional diagnostic accuracy for both local and distant recurrence compared with conventional imaging [23-26]. Although earlier localization of relapse is assumed to improve outcomes, data linking PSMA PET-driven management changes to prognosis remain limited. International recommendations already recognize PSMA PET/CT as an appropriate diagnostic option [27, 28], though the precise PSA threshold for referral is still uncertain.

The present study aims to determine the diagnostic performance of 18F-DCFPyL PET/CT in patients showing early biochemical relapse of PC after RP, as well as to assess its implications for treatment planning and clinical decision-making.

Materials and Methods

This investigation was conducted as a single-center, prospective observational study in Barcelona, Spain. Between September 2020 and January 2023, a total of 85 individuals with a confirmed diagnosis of PC who developed BCR after RP (PSA between 0.2 and 2.0 ng/mL) were included. Participants were either being evaluated for potential salvage radiotherapy or exhibited persistent PSA elevation after previous adjuvant or salvage irradiation to the prostate bed. All selected patients demonstrated negative findings on conventional imaging—contrast-enhanced CT, pelvic MRI, and bone scans—indicating no evidence of local or distant metastases.

The ability of 18F-DCFPyL PET/CT to identify recurrent lesions was assessed by comparing per-patient detection rates (DRs) with various clinical and biochemical parameters. Clinical indicators included Gleason score and ISUP classification, while biochemical markers consisted of PSA categories (<0.5, 0.5-1, and >1 ng/mL) and PSA doubling time (DT-PSA) groups (<6, 6-12, and >12 months).

Detected abnormalities were further sorted into local relapse, pelvic or extra-pelvic lymph node involvement, skeletal, and visceral metastases. Receiver operating characteristic (ROC) curve analysis was applied to define the optimal thresholds for PSA (ng/mL) and DT-PSA (months). Following the imaging procedure, the influence of PSMA-positive results on both treatment modification and overall patient management was evaluated.

Baseline patient data collected at enrollment included surgical procedure type, tumor histopathology (initial Gleason score and ISUP group), TNM stage, use of androgen deprivation therapy (ADT), and PSA plus DT-PSA values in the months before the PET/CT scan. All clinical reviews and therapy decisions were discussed with experienced radiation oncology consultants.

PET/CT procedure and image interpretation

Each participant underwent imaging in the Nuclear Medicine Department of Hospital del Mar (Barcelona, Spain). An intravenous dose between 299 and 333 MBq of 18F-DCFPyL—manufactured in compliance with Good Manufacturing Practice and provided by Curium Pharma (Spain)—was administered. Ninety minutes after injection, a full-body PET scan combined with diagnostic CT was performed on a Siemens Biograph 40m CT system, following EANM guidelines [29].

An iodinated contrast agent was used when not contraindicated; furosemide was intentionally omitted. When clinically warranted, a 5-minute delayed pelvic acquisition was included.

Image analysis was carried out on SyngoVia-20 software (Siemens Healthineers, Erlangen, Germany) by two highly trained nuclear medicine specialists. If discrepancies were found, the final interpretation was agreed upon by consensus. Evaluations followed standardized reporting systems—PROMISE and PROMISE V2—for PSMA-ligand PET/CT in prostate cancer [30, 31].

Lesions demonstrating focal uptake inconsistent with normal physiological distribution and judged “consistent” or “suggestive” under PROMISE V2 were labeled as positive findings. After scan completion, lesions were classified as local recurrence, pelvic or distant lymph node disease, bone metastases, or visceral spread.

The interpreting physicians had over a decade of PET/CT experience in prostate cancer imaging using 11C- and 18F-choline tracers, and had utilized three different PSMA ligands since 2018.

Statistical approach

Continuous variables were expressed as mean ± standard deviation, while categorical variables were summarized as counts and percentages. Comparisons between PET-positive and PET-negative groups employed the Chi-square or Fisher's exact test for categorical data, and the Mann-Whitney U test for continuous variables—chosen due to the non-normal distribution of several datasets.

A multivariate logistic regression was applied to explore predictors associated with positive imaging outcomes. Variables were selected according to both clinical relevance and statistical significance ($p < 0.05$, or approaching 0.1) from bivariate analysis.

ROC analysis determined the ideal cutoff values for PSA (ng/mL) and DT-PSA (months). All analyses were carried out with STATA v15.1, and statistical significance was defined as $p < 0.05$.

Results and Discussion

A total of 85 participants met eligibility criteria. **Table 1** summarizes patient demographics and clinical data. The study cohort ranged in age from 48 to 78 years (mean = 69). Initial tumor stages were T2 (50.58%) and T3 (48.23%), with N1 involvement in 4.7% of cases. The Gleason score was <8 in 43.2% and ≥8 in 56.4%. The mean baseline PSA at diagnosis was 11.24 ng/mL. All subjects underwent radical prostatectomy (RP), and pelvic lymph node dissection (PLND) was performed in 51.76%. Adjuvant radiotherapy was provided to 14.11%, salvage radiotherapy to 38.82%, and ADT was used in 38.82% of patients.

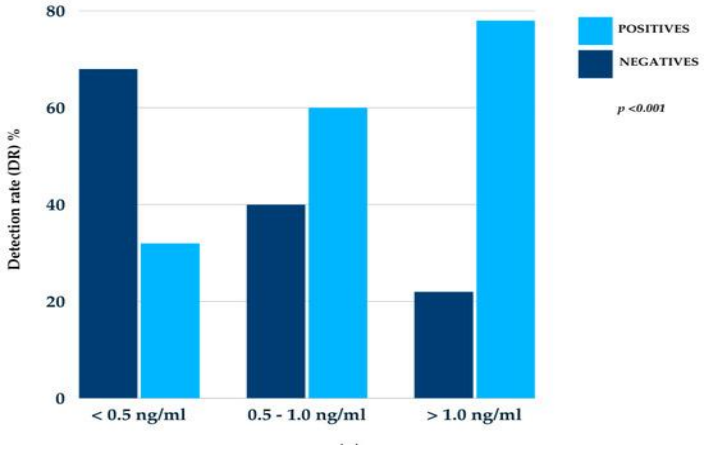
Table 1. Clinical characteristics of enrolled patients (n = 85)

Characteristic	Value
Age	48-74 years
Median age	69 years
Mean PSA at diagnosis	11.24 ng/mL
TNM	
T2 a-b	7
T2c	36
T3a	21
T3b	20
T4	1
Nx	32
N0	49
N1	4
Mx	32
M0	53
Histological characteristics	
Gleason score < 8	37
Gleason score > 8	48
ISUP 1-2	25
ISUP 3	22
ISUP 4-5	38
Primary treatment	
RP	41
RP + PLND	44
Radiotherapy	
None	40
Adjuvant	12
Salvage	33
ADT	
Yes	33
No	52
Median PSA (pre-DCFPyL PET/CT)	0.59 ng/mL (0.29-1.0)
Mean DT-PSA (pre-DCFPyL PET/CT)	7.2 months (3-9.1)

Positive findings on 18F-DCFPyL PET/CT were seen in 45 of 85 patients (53%). The median PSA prior to the scan was 0.59 ng/mL (95% CI: 0.29-1.0; p = 0.004), and the median DT-PSA was 7 months (95% CI: 3-9; p = 0.005). Among PET-positive patients, 54% had a Gleason score ≥8, 28.9% belonged to ISUP grade 3, 57.7% to grades 4-5, and 15.6% presented pN1 disease at diagnosis. The distribution of T2c-T3b stages was comparable in both PET-positive and PET-negative groups.

Detection efficiency of 18F-DCFPyL PET/CT

Detection rates were 31.3%, 60%, and 77.8% in patients with PSA values <0.5, 0.5-1.0, and >1.0 ng/mL, respectively. For DT-PSA, DRs were 61.5%, 50%, and 26.7% corresponding to <6, 6-12, and >12 months. According to ISUP risk categories, DRs were 24% (grades 1-2), 59% (grade 3), and 68.4% (grades 4-5). Statistical analysis confirmed significant associations for PSA ($p < 0.001$), DT-PSA ($p < 0.005$), and ISUP classification ($p < 0.02$) **(Figure 1)**.



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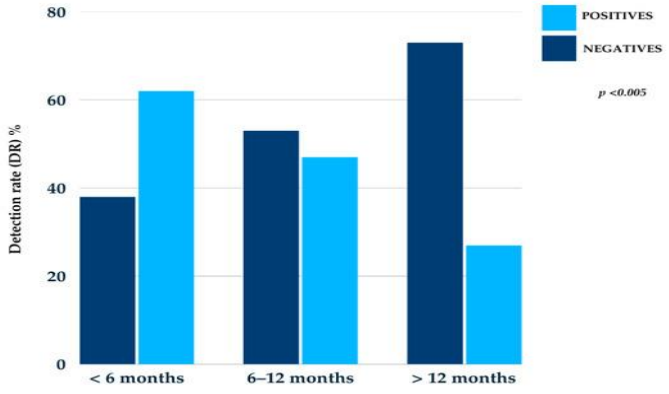

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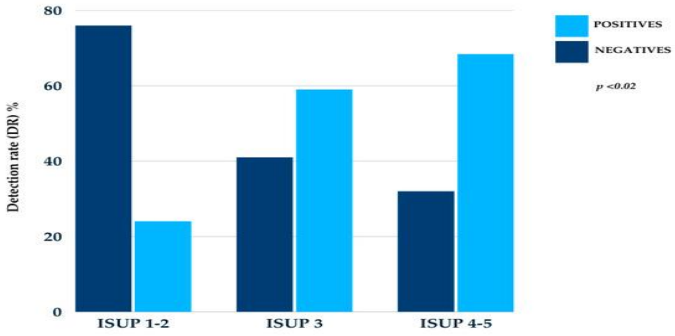


c)

Figure 1. Detection rate variation of 18F-DCFPyL PET/CT according to (a) PSA level, (b) DT-PSA, and (c) ISUP grade.

A total of 90 previously undetected lesions were visualized among PET-positive patients, comprising 21 local recurrences, 48 lymph node metastases, 18 bone lesions, and 3 visceral deposits **(Figures 2-4)**.

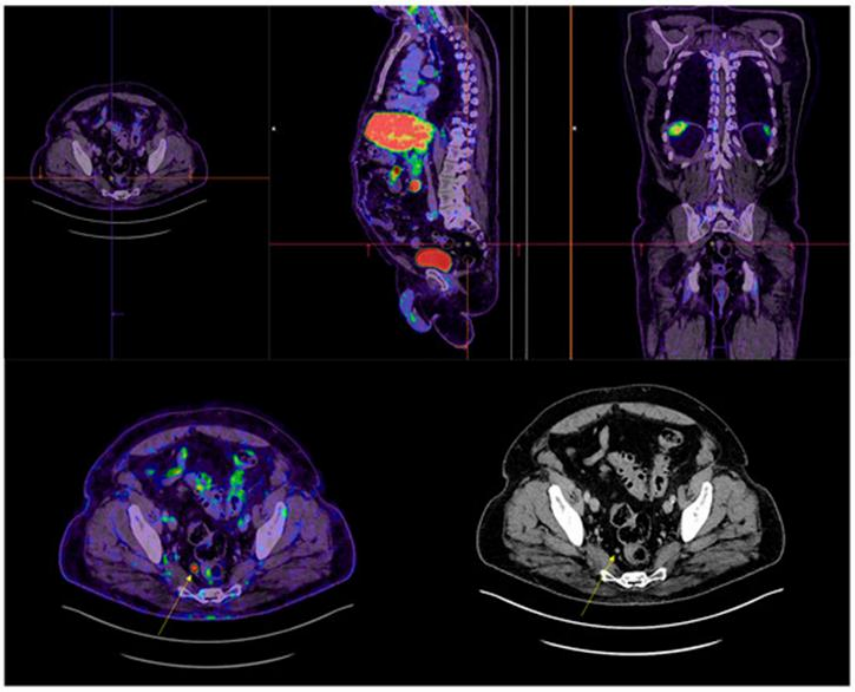


Figure 2. Pararectal nodal metastases (yellow arrow), PSA: 0.47 ng/mL, DT-PSA: 8 months, absent on standard imaging.

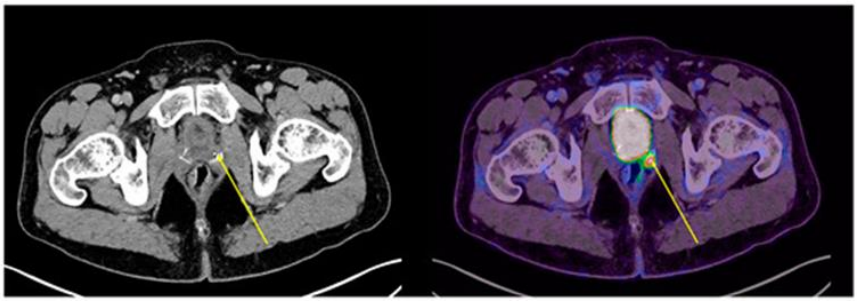


Figure 3. Local recurrence (yellow arrow), PSA: 0.28 ng/mL, DT-PSA: 8.5 months, not seen radiologically.

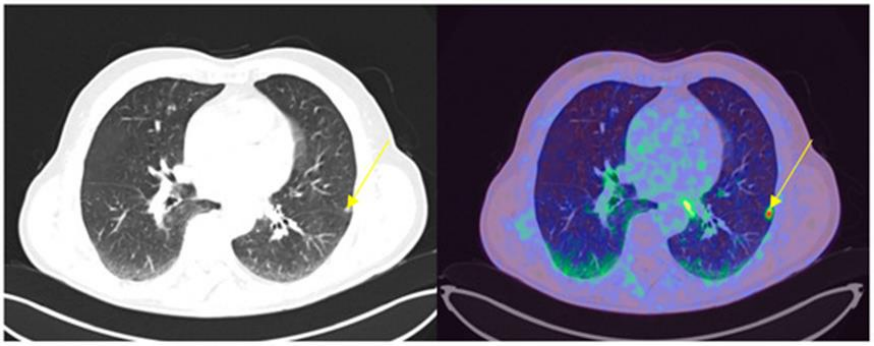


Figure 4. Pulmonary lesion (yellow arrow), nonspecific on CT, PSA: 0.77 ng/mL, DT-PSA: 6 months.

By disease location, detection distribution was 22.2% for local recurrence (10 patients), 51.1% for lymphatic involvement (23 patients), 20% for osseous lesions (9 patients), and 6.7% for visceral metastases (3 patients) **(Figure 5)**.

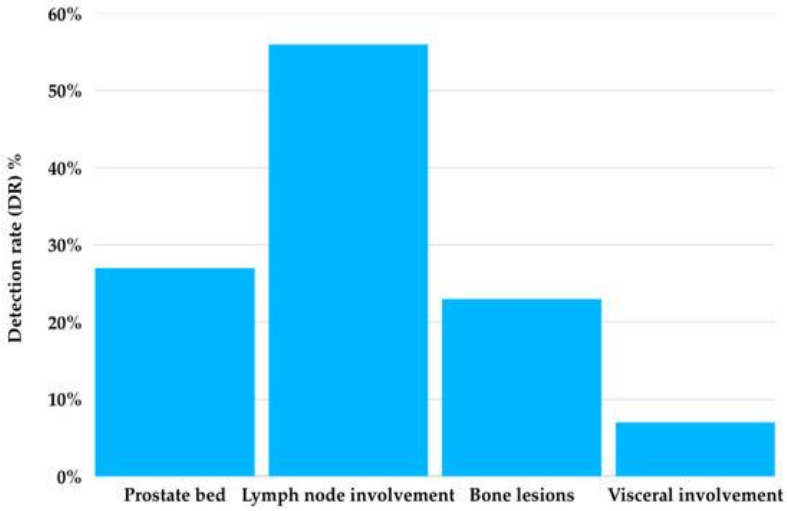


Figure 5. Positive detection proportion by anatomical site in 18F-DCFPyL PET/CT scans.

The distribution of sites showing PSMA uptake was further correlated with PSA concentration (ng/mL) and PSA doubling time (DT-PSA, months). The subgroup most frequently presenting with positive PET/CT scans exhibited PSA values between 0.5 and 1.0 ng/mL and a DT-PSA shorter than six months **(Figure 6)**.

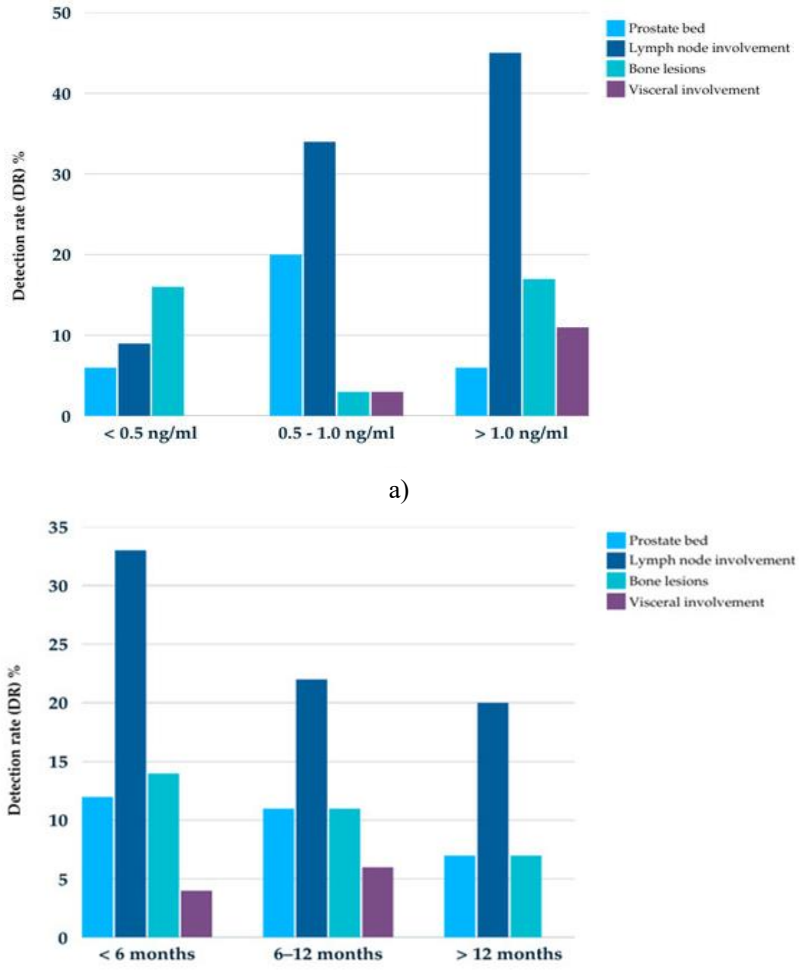
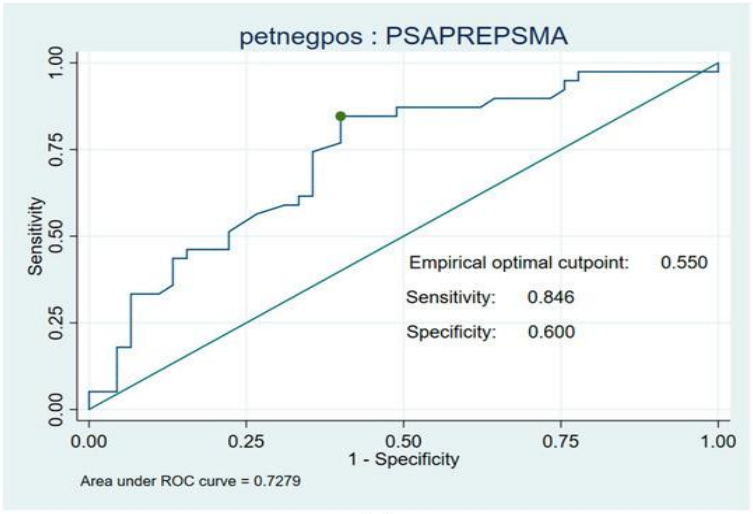


Figure 6. (a) Detection rate of 18F-DCFPyL PET/CT across PSA values (ng/mL) categorized by lesion site. (b) Detection rate relative to DT-PSA (months) distributed by location.

Receiver operating characteristic (ROC) evaluation indicated an optimal PSA threshold of 0.55 ng/mL for predicting a positive 18F-DCFPyL PET/CT outcome, with a sensitivity of 84% and specificity of 60%, yielding an AUC of 0.72 (95% CI: 0.51-0.85).

For DT-PSA, the ideal predictive value was determined to be 9.2 months, providing 89% sensitivity and 37% specificity, and an AUC of 0.60 (95% CI: 1.65-14.3) **(Figure 7)**.



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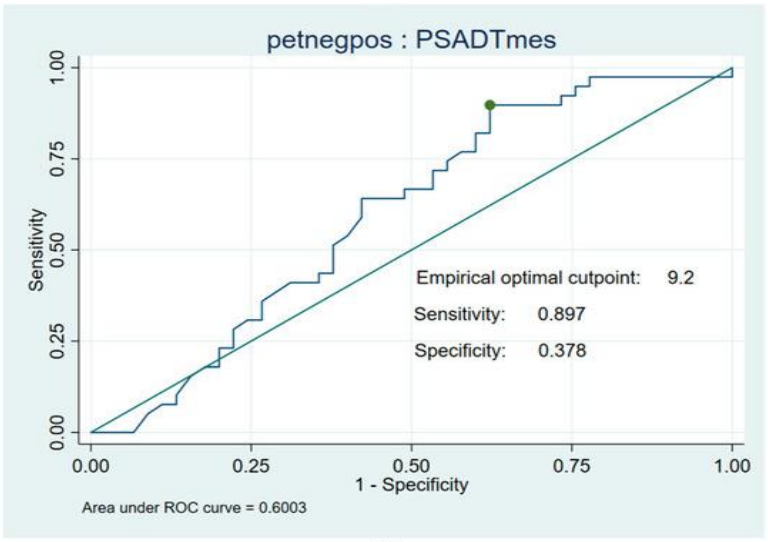

b)

Figure 7. (a) ROC curve identifying PSA (ng/mL) threshold. (b) ROC curve identifying DT-PSA (months) threshold.

Modification of treatment strategy and patient management

Among patients with positive PET/CT results, therapeutic approaches were adjusted in 84.4% (38 of 45) of cases ($p < 0.001$). At enrollment, all 85 participants with biochemical recurrence (BCR) following prostatectomy were considered for either adjuvant or salvage radiotherapy to the prostate bed, androgen deprivation therapy (ADT) in previously irradiated individuals, or close observation.

After reviewing PET/CT outcomes, treatment strategies were revised depending on the presence or absence of detectable PSMA uptake. In 38 patients with positive scans, major therapeutic changes included:

Extending pelvic radiotherapy with possible dose intensification to the affected nodal regions,

Use of stereotactic body radiotherapy (SBRT) directed toward PSMA-positive lesions, and

Boosted radiation doses to the prostate bed in cases showing localized recurrence.

Because the imaging revealed extra-pelvic nodal, osseous, or visceral metastases, 42.3% of these patients also received systemic therapy with androgen receptor signaling inhibitors (ARSIs).

In contrast, within the PET-negative group (40/85), approximately 41% continued with the initial radiotherapy recommendation for the prostate bed, whereas 59% were managed through surveillance and periodic follow-up **(Figure 8)**.

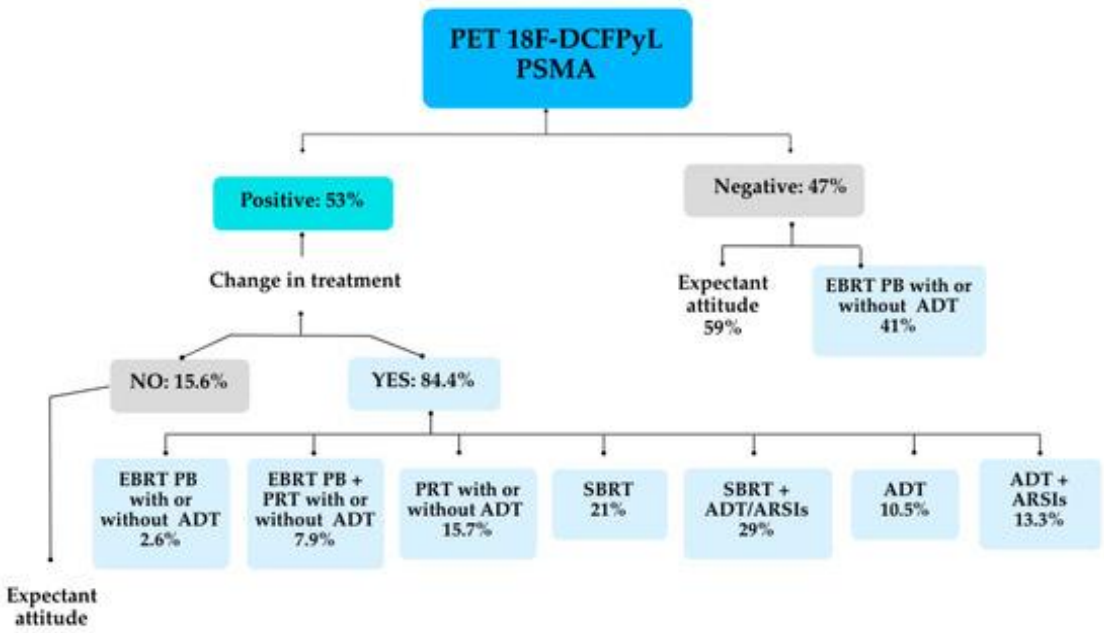

Figure 8. Adjustments in management strategies following 18F-DCFPyL PET/CT based on positivity or negativity of findings.

After these PSMA-informed adjustments, and during a 24-month follow-up, the median PSA concentration dropped to 0.08 ng/mL. Among PSMA-positive cases, 65.8% achieved a PSA decline exceeding 50%, 26.3% had a reduction below 50%, and 7.9% showed no measurable biochemical improvement.

Prostate-specific membrane antigen (PSMA) ligands are specialized radiotracers designed for PET/CT imaging of prostate cancer. The first compound of this class was synthesized and validated in preclinical work at Johns Hopkins University [32], followed by the introduction of 68Ga-PSMA-11 by the Heidelberg team [33].

Although these agents differ in isotope labeling, chemical composition, and biodistribution, their variations mainly affect physiological uptake and interpretative complexity. To date, evidence does not demonstrate that any single PSMA ligand delivers superior clinical outcomes compared with others [22].

Among them, 68Ga-PSMA-11 remains the most extensively validated agent. Currently, 68Ga-PSMA-11, 18F-DCFPyL, and 18F-PSMA-1007 are the dominant tracers used worldwide, all sharing high binding affinity to the external PSMA domain and showing detection accuracy that parallels tumor aggressiveness.

18F-DCFPyL achieves a lesion detection rate comparable to 68Ga-PSMA-11 without increasing false positives, and the superior spatial resolution of 18F imaging may account for slightly higher detection sensitivity [21]. Given their functional overlap, 68Ga-PSMA-11, 18F-DCFPyL, and 18F-PSMA-1007 are collectively categorized as PSMA ligands [22].

Traditional imaging—such as ultrasound, CT, and MRI—is considerably less sensitive than PET for identifying biochemical recurrence. Earlier PET tracers like 18F/11C-Choline and 18F-Fluciclovine were once commonly used but have largely been replaced by PSMA-targeted agents labeled with 18F or 68Ga, which achieve higher sensitivity and specificity, especially at low PSA concentrations [15, 18, 19, 25].

Even in newly diagnosed cases, PSMA-PET has been shown to outperform CT, MRI, and bone scans in identifying nodal and skeletal metastases, and to exceed multiparametric MRI performance when using PSMA-PET/MRI hybrid imaging [34].

While international guidelines recommend PSMA PET/CT for biochemical recurrence, the exact PSA threshold for requesting the scan remains undetermined [28].

This prospective observational study highlights the diagnostic performance and clinical relevance of 18F-DCFPyL PET/CT in individuals with early BCR after radical prostatectomy (RP). Molecular imaging with this tracer enables early localization of recurrence and more individualized therapy planning.

According to EAU guidelines, PSMA-based PET/CT is advised when BCR occurs post-RP, particularly when PSA is between 0.2 and 0.5 ng/mL and imaging is expected to guide further management [27, 28].

Our data reveal strong detection rates (DR) across different PSA and DT-PSA intervals, confirming superior diagnostic capacity relative to standard methods such as contrast-enhanced CT, pelvic MRI, and bone scintigraphy.

Furthermore, there is a clear positive correlation between PSA concentration, DT-PSA, and ISUP risk group and the probability of identifying disease on 18F-DCFPyL PET/CT (AUC = 0.74). The likelihood of detection increases substantially with higher PSA levels and shorter DT-PSA values, underscoring the test's sensitivity for early recurrence.

In this cohort, the majority of participants were classified as high-risk cases (Gleason score ≥ 8, ISUP grades 4-5). Those presenting with pre-PET/CT PSA values between 0.5 and 1.0 ng/mL showed a 60% detection rate (DR) for recurrent malignancy. By comparison, PSA levels below 0.5 ng/mL yielded a DR of 31.3%, while values above 1.0 ng/mL resulted in 77.8%, emphasizing the efficiency of PSMA-targeted scans, even in situations with minimal PSA elevation—a known limitation of conventional radiological tests.

Regarding PSA doubling time (DT-PSA), the predominant subgroup had DT-PSA under 6 months, followed by individuals with 6-12 months, corresponding to detection rates of 61.5% and 50%, respectively. These outcomes are aligned with major prospective research, highlighting the central role of PSMA PET/CT for patients experiencing biochemical recurrence (BCR) of prostate cancer (PC).

Comparable trends have been demonstrated in large-scale investigations such as the CONDOR Phase 3 trial Morris *et al.* [35], which evaluated 208 patients lacking visible disease on traditional imaging. That study showed that 18F-DCFPyL PET/CT achieved notable detection rates, varying from 36.2% at PSA < 0.5 ng/mL to 96.7% when PSA ≥ 5 ng/mL. Importantly, 63.9% of subjects underwent alterations in therapeutic strategy following imaging. Similar conclusions were reached by Fendler *et al*. [36] and Aydin *et al*. [37], both emphasizing the modality's capacity for early identification of recurrence.

Fendler observed up to 80% detection among men with increasing PSA, uncovering metastases that were invisible to standard imaging, whereas Aydin showed that PSMA PET/CT detected lesions outside conventional radiotherapy boundaries in patients with PSA ≤ 1 ng/mL, supporting its importance in post-surgical management.

In a separate investigation, Hoffman *et al*. [38] explored correlations between PSA kinetics and disease localization using 68Ga-PSMA-11 PET/CT in 581 men with BCR. Their results demonstrated detection rates of 40% for PSA 0.2-0.5 ng/mL and 94% for PSA > 5 ng/mL, confirming that higher PSA values and shorter DT-PSAs markedly improve disease visibility. These data reinforce the concept that PSA dynamics are pivotal for optimizing scan timing [39, 40].

Evidence from meta-analytic work further supports this relationship. For instance, Treglia *et al*. [41], in a pooled analysis of six studies encompassing 645 patients, reported overall DRs of 86% for PSA ≥ 0.5 ng/mL and 49% for PSA < 0.5 ng/mL, confirming a significant correlation between PSA burden and detection efficacy. Similarly, a multi-center evaluation by Afshar-Oromieh *et al*. [42], including 2533 subjects, demonstrated an increase in DR from 43% when PSA ≤ 0.2 ng/mL to 93% for PSA > 10 ng/mL. Collectively, both prior evidence and our data indicate that PSMA molecular imaging effectively narrows the gap between biochemical relapse suspicion and actual disease mapping, particularly for rapidly advancing or aggressive cases [36, 43].

In Hoffman's analysis [38], the optimal PSA limit predicting positivity was 1.24 ng/mL. Correspondingly, in our cohort, ROC curve evaluation identified a PSA cutoff of 0.55 ng/mL and DT-PSA threshold of 9.2 months as reliable predictors of a positive 18F-DCFPyL PET/CT outcome.

A total of 90 PSMA-positive lesions were detected in our series that remained undetected by conventional modalities. These encompassed prostate bed relapses (22.2%), pathologic lymph nodes within and beyond the pelvis (51.1%), bone metastases (20%), and visceral deposits (6.7%), illustrating the superior spatial mapping achievable through molecular imaging. Similar observations have been reported in other clinical evaluations [44-46].

The OSPREY Phase 2/3 trial, led by Pienta and Gorin *et al*. [25], remains a cornerstone in evaluating 18F-DCFPyL PET/CT among high-risk and recurrent PC cohorts. The trial confirmed that the radiotracer reliably detects occult disease across the prostate bed, lymph nodes, and distant organs, contributing to more accurate restaging and

refined treatment decisions. The modality exhibited 89% sensitivity for lesions associated with low PSA, emphasizing its clinical relevance. Collectively, these data affirm that 18F-DCFPyL PET/CT provides meaningful clinical benefits for early recurrence detection and treatment planning.

In parallel, Roach *et al*. [47] conducted a prospective study across four Australian centers, enrolling 431 PC patients, and demonstrated the substantial influence of 68Ga-PSMA PET/CT on clinical management. Imaging findings led to modifications in therapy for 51% of all participants, a figure that rose to 62% among BCR cases compared to 21% for primary staging. New findings appeared in the prostate bed (27%), locoregional nodes (39%), and distant sites (16%), reaffirming the diagnostic advantage of this molecular imaging approach.

The use of PSMA PET imaging extends beyond diagnosis and can also refine the selection and planning of salvage treatments. In a study by Emmett *et al*. [48], involving 164 men eligible for salvage radiotherapy following radical prostatectomy (RP) due to rising PSA levels between 0.05 and 1.0 ng/mL, PSMA PET served as an independent predictor of therapeutic response. Patients showing negative scans or lesions confined to the prostatic fossa had markedly better outcomes with salvage fossa radiotherapy, while those exhibiting nodal or distant metastases demonstrated inferior responses to the same treatment. These findings closely align with our own results, reinforcing the utility of PSMA PET/CT in identifying hidden lesions and improving clinical decision-making [49, 50].

In our analysis, 18F-DCFPyL molecular imaging significantly influenced treatment strategies, consistent with earlier published data. Among individuals with positive PET/CT findings, therapeutic management was modified in 84.4% of cases, leading to refined radiotherapy planning and an increased adoption of systemic regimens, particularly androgen receptor signaling inhibitors (ARSIs) used in conjunction with androgen deprivation therapy (ADT). These outcome-driven changes highlight how PSMA PET/CT can redefine disease staging, personalize therapeutic approaches, and enhance overall patient management.

The results of this investigation underscore the superior diagnostic accuracy of 18F-DCFPyL PET/CT in comparison with traditional imaging techniques, exhibiting notably higher sensitivity for detecting recurrent lesions in patients with biochemical recurrence (BCR) of prostate cancer (PC). Beyond detection, the modality adds substantial clinical value by supporting individualized therapeutic strategies that integrate both localized and systemic treatment options.

This research was designed as a prospective observational analysis with a moderate sample size, aimed at assessing the diagnostic potential of 18F-DCFPyL PET/CT in BCR prostate cancer cases. Although survival outcomes were not a primary endpoint, the absence of long-term progression-free survival (PFS) and overall survival (OS) data remains a limitation. A subsequent longitudinal assessment is planned to incorporate these outcome measures.

Future work will involve comparative studies assessing various 18F-labeled PSMA ligands against standard imaging methods. The current dataset did not include direct comparisons, as all participants presented with negative findings on conventional imaging, and the focus was specifically on evaluating metabolic detectability through PSMA PET.

Plans are underway to increase the study population, particularly concentrating on patients with low PSA levels in the BCR setting, and to conduct a detailed comparative analysis of PSMA-adapted radiotherapy fields versus those guided by traditional imaging.

Conclusion

The findings confirm that 18F-DCFPyL PET/CT is a precise and dependable imaging tool for the early detection of occult biochemical recurrence after radical prostatectomy, offering strong detection rates even when PSA levels are low. In our cohort, the test influenced clinical decision-making and treatment adjustments in 84.4% of PSMA-positive patients. We conclude that PSMA-based molecular imaging is essential for both accurate diagnosis and effective therapeutic planning in prostate cancer recurrence.

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Conflict of Interest: None

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Ethics Statement: None

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