

A Teaching Tool on How to Reduce All-Cause Mortality (ACM) in Biochemical Recurrence (BCR) and Role of 18F-DCFPyL PSMA PET-CT

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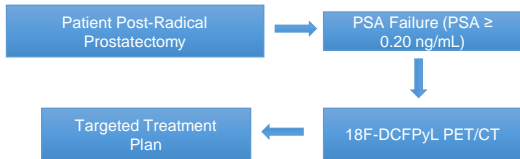


INTRODUCTION

Teaching Points:

- To examine radical prostatectomy surveillance and PSA levels for biochemical recurrence (BCR)
- To compare PET/CT radiotracers
- To discuss imaging-driven changes in BCR management
- To review 18F-DCFPyL PET/CT updates for improved outcomes

18F-DCFPyL PET/CT Pathway for Post-Prostatectomy Evaluation



Prostate-specific membrane antigen positron emission tomography (PSMA-PET)

- 18F-DCFPyL PET/CT, a novel imaging technique utilized in the detection and management of prostate cancer.
- Particularly valuable in identifying biochemical recurrence (BCR) in men with prostate-specific antigen (PSA) failure post-radical prostatectomy (RP), especially when PSA levels are ≥ 0.20 ng/mL.

METHODS

- MEDLINE, PubMed, and Google Scholar were employed with search criteria including combinations of "18FDCFPyL" and "biochemical."
- Patient cases utilizing 18F-DCFPyL were systematically gathered and examined to serve as examples.
- Relevant cases from an academic and tertiary care hospital were also included.

RESULTS

Radiotracer Comparison

- Oprea-Lager et al.
- Compared 18F-DCFPyL and [18F]fluoromethylcholine PET/CT with first prostate cancer BCR, revealing **significantly higher detection rates for 18F-DCFPyL** across various PSA levels.
- 18F-DCFPyL PET/CT demonstrated a **detection rate of 58% compared to 40%** for [18F]fluoromethylcholine PET/CT

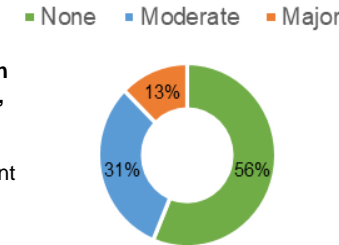
Improved Outcomes

- Metser et al.
- 18F-DCFPyL PET was **positive in >90% of patients with biochemical failure.**
- For those with limited recurrence, PSMA PET-directed local ablative therapies resulted in **favorable outcome in >75%**,

Imaging-Driven Management Changes

- Ng et al.
- Studied 18F-DCFPyL PET/CT in post-RP PSA recurrence.
- PSMA PET/CT **detects disease in 46.9% of patients, surpassing CT (15.5%).**
- Found management changes double post-PET.

Change in Management after PSMA PET



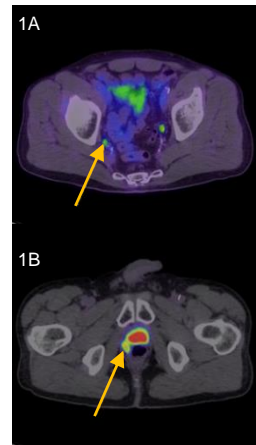
Case 1:

- Gleason Score 8 adenocarcinoma of the prostate status post radical prostatectomy in 2018.
- Recurrent disease treated with IM RT completed 3/10/2020.

- Rising PSA levels:
- 0.55ng/ml on 10/27/2021
- 0.95 ng/ml on 2/28/2022

- Right Obturator Node (1A, Arrow):
- SUVmax 3.0, 0.4 cm

- Right Perirectal soft tissue (1B, Arrow):
- SUVmax 27.5, 1.2 cm



Case 2:

- Metastatic prostate carcinoma with brain, spinal, liver and lung metastasis and low PSA.

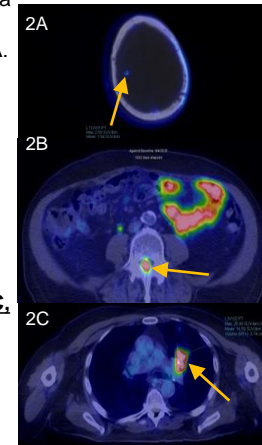
- Right frontal lesion (2A, Arrow):
- SUVmax 2.6

- Spinal canal lesions (2B, Arrow):
- SUVmax 2.7 (L1), 10.0 (L4)

- Left endobronchial lesion (2C, Arrow):
- SUVmax 27.0, 3.1 x 2.7 cm

- Lingular nodule:
- SUVmax 5.6, 0.9 cm

- Right hepatic lobe lesions:
- SUVmax 12.3



CONCLUSION

- Notably elevated median SUVmax on 18F-DCFPyL PET/CT scans in biochemical recurrence suggests **potential prognostic value**, guiding disease monitoring and treatment planning.
- 18F-DCFPyL PET/CT boasts **superior detection rates and heightened sensitivity compared to conventional radiotracers**, facilitating precise identification of prostate cancer lesions.
- Utilizing 18F-DCFPyL PET/CT leads to a **doubling in management changes** compared to CT scans, indicating its superior diagnostic capacity for guiding tailored treatment strategies.
- Valuable role in reducing mortality and improving outcomes** for biochemical recurrence by enabling accurate lesion detection and personalized treatment decisions
- Pivotal significance in optimizing patient care** by providing clinicians with precise disease status information, facilitating tailored treatment approaches, and ultimately improving patient management and outcomes.

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