

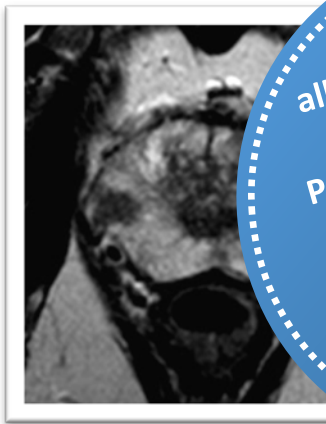
an educational pamphlet from

14

Prostate Cancer MRI
Accurate Diagnosis and Treatment

PET/CT Scan

18F- Fluorocholine (18F-FCH)
(Radiopharmaceutical)



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pamphlets from
Prostate Cancer MRI
2016
go to
pcamri.com

for patients and curious doctors

Samuel Aronson, M.D. Stephan M. Probst, M.D.

Franck Bladou, M.D.

Armen Aprikian, M.D. & Marc Emberton, M.D. Forewords

18F-Fluorocholine PET/CT Scan

Positron Emission Tomography Imaging

- Characterizes and localizes prostate cancer
- Distinguishes tissues according to metabolism rather than structure as seen on CT Scan and MRI

Five Evolving Indications

- Define dominant cancer nodule for targeted biopsy and focal therapy
- Initial local and distant cancer staging in select patients
- Restaging of recurrent cancer and castrate resistant cancer
- Selection of men for salvage therapy with suspected local recurrence
- Treatment monitoring after radiation and medical oncology therapy

How does it do it?

- Prostate cancer cells have increased choline uptake and metabolism compared to normal tissue
- 18F-FCH is a radioactive choline derivative
- 18F-FCH is injected intravenously and accumulates in cancer cells
- PET/CT detects foci of the radiopharmaceutical indicating cancer

Accuracy

- High sensitivity in detecting local cancer and cancer recurrence
- Excellent specificity in detecting cancer in lymph nodes
- Excellent accuracy for metastatic bone disease
- More likely to show recurrent cancer if PSA is higher than 2 ng/ml and Gleason score is ≥ 7

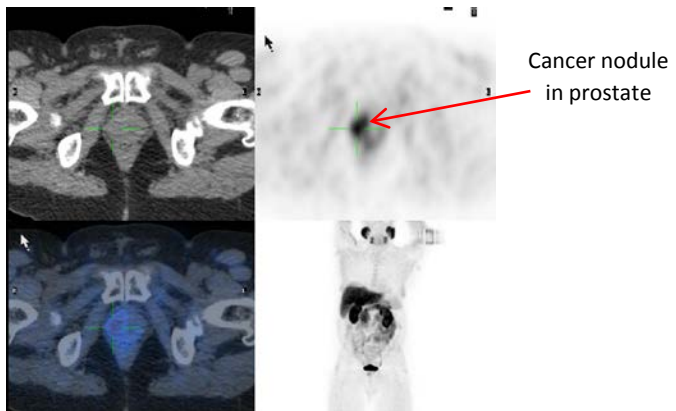
Drawbacks

- In Canada only available under research protocol
- Dosage of radiation comparable to full body CT
- An expensive test to be used selectively
- 1 ½ hour exam requiring an intravenous and barium drink

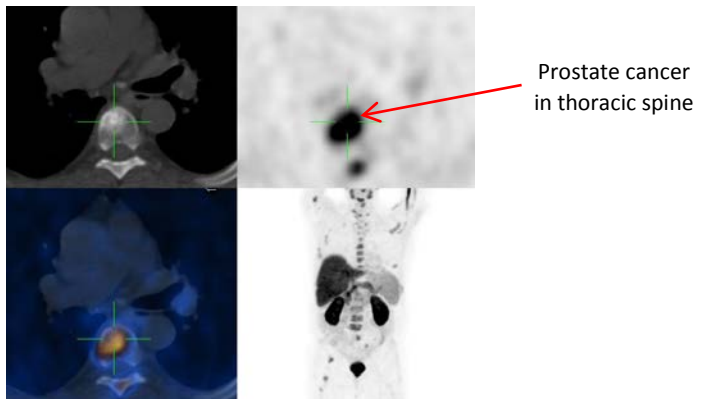
PET/CT scanner



Local Recurrence on FCH PET/CT



Bone Metastasis on FCH PET/CT



False positives

- Prostatitis
- Myelofibrosis in bones
- **Other cancers** such as pulmonary and colon

False negatives

- Very small cancers
- Cancers with low choline uptake
- Liver (has high normal choline uptake)
- Patient on Androgen Deprivation Therapy

Prostate Cancer Staging 2017

- **Local staging** (below aortic bifurcation)
Prostate MRI, 18F-FCH PET/CT scan
- **Distant staging** (above aortic bifurcation)
18F-FCH PET/CT scan, Bone scan, CT abdomen

Fluorinated choline radiopharmaceuticals are commonly used tracers in the USA and Europe. Their safety is well established. Because 18F-FCH is not Health Canada approved the Canadian experience is limited.

References

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Jewish General Hospital

SAMUEL ARONSON, M.D.
Assistant Professor of Urology, McGill University

3755, Côte Ste-Catherine Rd, E-959
Montreal (Quebec) H3T 1E2
Phone: 514 340-7558
Fax: 514 340-7559

STEPHAN M. PROBST, M.D.
Chief of Nuclear Medicine
Assistant Professor of Radiology, McGill University
3755, Côte Ste-Catherine Rd,
Pavillon G, G-19
Montreal (Quebec) H3T 1E2
Phone: 514 340-8222 Ext. 5374

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