PSMA PET Scan

What Is a PSMA PET Scan?
A prostate-specific membrane antigen positron emission tomography (PSMA PET) scan is an imaging test used to detect prostate cancer throughout the body. It uses a radioactive substance that targets a protein called PSMA, or prostate-specific membrane antigen, which is expressed by prostate cancer. This makes it more accurate for prostate cancer than other types of imaging tests.

How Is a PSMA PET Scan Performed?
A technician injects the radioactive substance that targets PSMA into a vein in the patient’s arm. An hour later, the patient lies down on a table that slides in and out of a donut-shaped machine. The machine collects many images of parts inside the body. The scan is done with either a computed tomography (CT) or magnetic resonance imaging (MRI) scan to provide more detailed images. A radiologist reviews all the images and reports areas of the body that have high levels of PSMA, like prostate cancer.

Are There Adverse Effects?
PSMA PET scans are safe for most patients. Some may experience temporary symptoms, such as headache, taste changes, or fatigue, that will go away on their own. Rarely, there may be an allergic reaction, particularly in patients with a history of allergy to other medications and foods. Lastly, the scan adds to a patient’s lifetime radiation exposure, which can slightly increase the risk of cancer.

Are There Limitations?
PSMA PET scans are not perfect. There is a small chance of a missed diagnosis because a small percentage of prostate cancers do not express PSMA and cannot be detected by a PSMA PET scan. Sometimes, PSMA is expressed by other types of cancer and by noncancer-related conditions, which may be incorrectly diagnosed as prostate cancer. Though rare, a missed diagnosis or an incorrect diagnosis can lead physicians to offer an inappropriate treatment.

Who Should Get a PSMA PET Scan?
At this time, a PSMA PET scan is used in the following situations:

- To rule out cancer spread to parts of the body far away from the pelvis (ie, metastases) in patients with prostate cancer that is potentially curable by surgery or radiotherapy. Patients with metastatic prostate cancer typically require systemic or “whole-body” treatments that go after cancer throughout the body; surgery and radiotherapy may not be appropriate for patients with metastases.
- To detect prostate cancer return in patients who already received surgery or radiotherapy but now have a rising prostate-specific antigen level. Results of a PSMA PET scan may help physicians and patients decide between radiotherapy and systemic therapy.
- To determine eligibility for lutetium Lu-177 vipivotide tetraxetan (Lu-177 PSMA), a radiopharmaceutical treatment that targets PSMA-expressing prostate cancer. This treatment can be used in patients with prostate cancer that has progressed during treatment with chemotherapy and novel oral hormone treatments. Treatment with Lu-177 PSMA is most effective in patients whose prostate cancer has a high level of PSMA expression on a PSMA PET scan. If a PSMA PET scan shows that a patient’s prostate cancer expresses little to no PSMA, Lu-177 PSMA is usually not helpful.

FOR MORE INFORMATION
American Society of Clinical Oncology: prostate cancer diagnosis
www.cancer.net/cancer-types/prostate-cancer/diagnosis
American Society of Clinical Oncology: prostate cancer types of treatment
www.cancer.net/cancer-types/prostate-cancer/types-treatment

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