FDA Approves ^{18}F-DCFPyL PET Agent in Prostate Cancer

The U.S. Food and Drug Administration (FDA) announced on May 27 its approval of Pylarify (^{18}F-piflufolastat; ^{18}F-DCFPyL) for PET imaging of prostate-specific membrane antigen (PSMA)–positive lesions in men with prostate cancer. In a press release, FDA announced approval for Pylarify in patients with suspected prostate cancer metastasis who are potentially curable by surgery or other therapy. Imaging with the agent is also indicated for patients with suspected prostate cancer recurrence based on elevated serum prostate-specific antigen (PSA) levels.

The FDA approved the first PSMA-targeted PET imaging drug, ^{68}Ga-PSMA-11, on December 1, 2020, for the same prostate cancer imaging indications as Pylarify. Marketed ^{68}Ga-PSMA-11, however, is currently available locally at only 2 sites in California. Pylarify, which will be manufactured by Lantheus Holdings, Inc. (North Billerica, MA), is anticipated to be distributed from multiple sites throughout the United States, leveraging the manufacture and distribution advantages of ^{18}F, as well as the radionuclide's long half-life. In a press release issued on the same day as the FDA announcement, Lantheus stated: "The product will be immediately available in parts of the mid-Atlantic and southern regions, and availability is expected to rapidly expand over the next 6 months with broad availability across the U.S. anticipated by year end."

"The FDA approval of PYLARIFY is a significant milestone for Lantheus and the prostate cancer community in the United States," said Mary Anne Heino, President and Chief Executive Officer of Lantheus. "We believe PYLARIFY represents a paradigm shift in the identification and management of patients with suspected metastasis or recurrent prostate cancer, providing more accurate and earlier detection of disease than conventional imaging so that doctors, along with patients and their families, can make more informed treatment decisions."

The safety and efficacy of Pylarify were evaluated in 2 prospective clinical trials (OSPREY and CONDOR) with a total of 593 men with prostate cancer who each received a single injection of Pylarify. In the first trial, a cohort of 268 patients with biopsy-proven prostate cancer underwent PET/CT scans performed with Pylarify. These patients were candidates for surgical removal of the prostate gland and pelvic lymph nodes and were considered at high risk for metastasis. Among patients who proceeded to surgery, those with positive findings in pelvic lymph nodes on PET had a clinically important rate of metastatic cancer confirmed by surgical pathology. The improved specificity and high positive-predictive value led to the conclusion that "^{18}F-DCFPyL-positive lesions are likely to represent disease, supporting the potential utility of ^{18}F-DCFPyL PET/CT to stage men with high-risk prostate cancer for nodal or distant metastases and reliably detect sites of disease in men with suspected metastatic prostate cancer" (*1*).

The CONDOR trial enrolled patients who had rising serum PSA levels after initial prostate surgery or other definitive therapy (i.e., evidence of biochemical recurrence). Before a single Pylarify PET/CT scan, patients underwent baseline conventional imaging that was negative for metastases. Pylarify PET detected at least 1 positive lesion in at least 1 body region (bone, prostate bed, pelvic lymph node, other lymph nodes, or soft tissue) in 60% of participants. In patients with positive Pylarify findings who had results from correlative tissue pathology, baseline or follow-up imaging by conventional methods, or serial PSA levels, local recurrence or metastasis was confirmed in ~85%–87% of cases. The study's primary endpoint was achieved, demonstrating disease localization in the setting of negative standard imaging and providing "clinically meaningful and actionable information" (*2*). Additional results from the study were presented at the SNMMI Annual Meeting in June, with the authors again noting high positive-predictive values for ^{18}F-DCFPyL PET/CT in detection and localization of metastatic disease regardless of anatomic region (*3*).

"Conventional imaging has significant limitations in detecting prostate cancer, both in initial staging and when the cancer has recurred or spread after initial primary treatment. Specifically, standard imaging poorly detects the early spread to distant organs, such as the lymph nodes, bones, and other organs," said Michael J. Morris, MD, Prostate Cancer Section Head, Genitourinary Medical Oncology, Memorial Sloan Kettering Cancer Center (New York, NY) and lead study investigator in the CONDOR trial and study investigator in the OSPREY trial. "PYLARIFY can detect the spread of disease well before standard imaging and can be a transformative diagnostic tool that helps clinicians develop treatment plans based on a much more accurate understanding of a patient's distribution of disease."

REFERENCES

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