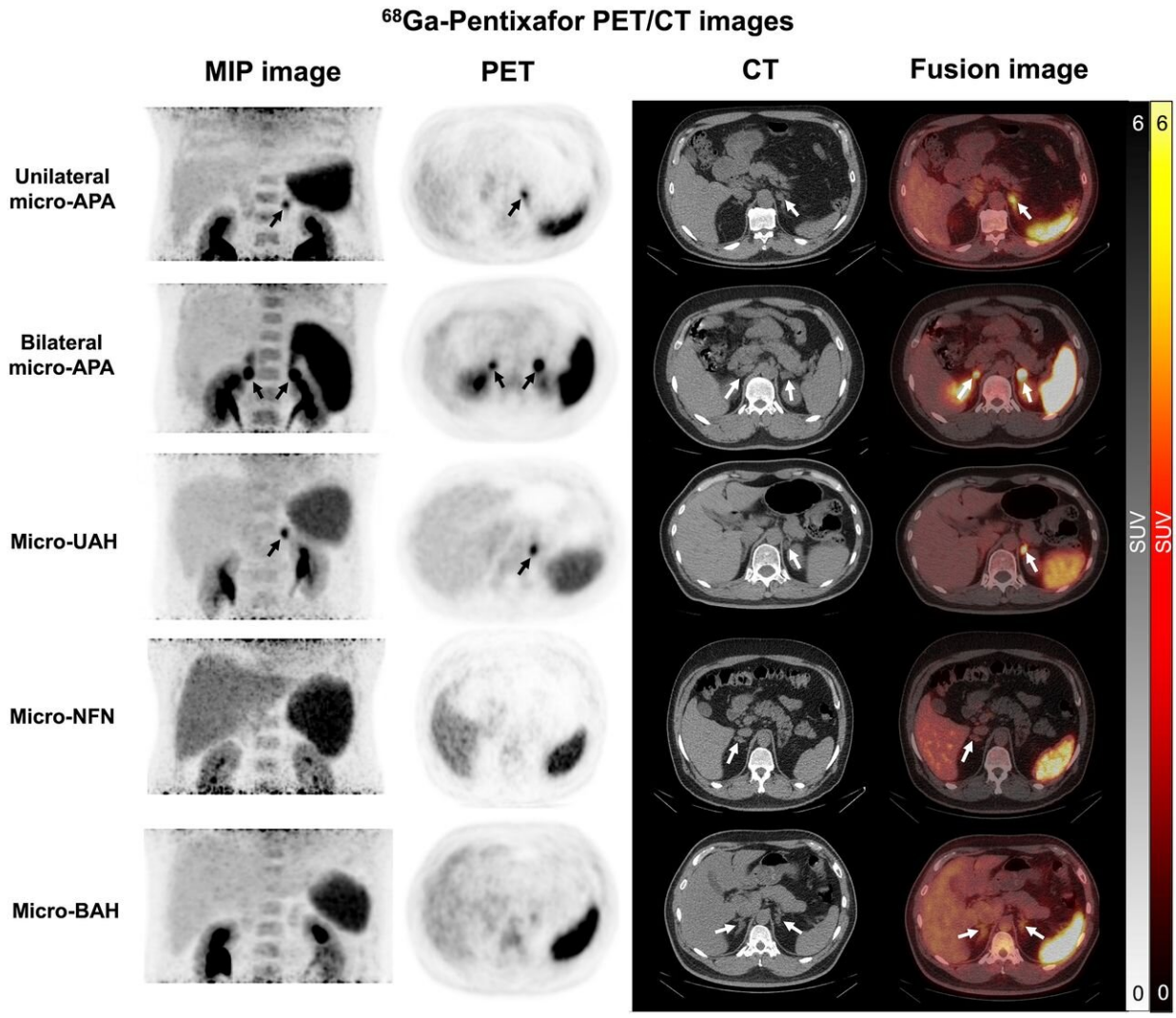
New PET/CT technique accurately diagnoses adrenal gland disorder, informs personalized treatment plans

January 18 2024



Performance of ^{68}Ga-pentixafor PET/CT in PA patients with different adrenal

micronodules. MIP = maximum-intensity projection; NFN = nonfunctioning nodule. Credit: Jie Ding and Li Huo, et al., Peking Union Medical College Hospital, Beijing, China

A novel imaging approach, ^{68}Ga-pentixafor PET/CT, has been shown to accurately identify sub-types of primary aldosteronism (an adrenal gland disorder), outperforming traditional methods for diagnosis. Reported in *The Journal of Nuclear Medicine*, this detailed imaging technique provides a clearer picture of the adrenal glands, helping doctors decide more confidently whether surgery is the right option for patients.

Primary aldosteronism is an endocrine disorder that occurs when the adrenal glands produce too much of the hormone aldosterone, frequently caused by the presence of nodules on the glands. High aldosterone levels cause the body to retain too much sodium and not enough potassium. This imbalance can lead to high blood pressure, putting patients at an increased risk of stroke and heart disease.

"In primary aldosteronism, it's important for physicians to differentiate between surgically eligible and ineligible forms so that they can develop the best treatment plan. This is usually done with adrenal CT and adrenal venous sampling. However, is rather challenging and often imprecise to diagnose adrenal micronodules with these methods," said Li Huo, MD, Ph.D., professor and chair in the Department of Nuclear Medicine at the Chinese Academy of Medical Sciences and Peking Union Medical College Hospital in Beijing, China. "To more clearly image these micronodules, we combined PET/CT with a unique tracer that targets specific receptors in the adrenal glands and evaluated its performance."

In the study, 123 patients with adrenal micronodules identified by adrenal CT were examined using ^{68}Ga-pentixafor PET/CT, and 104

patients who underwent surgery or successful adrenal venous sampling were included in the analysis. Nuclear medicine physicians evaluated the ^{68}Ga-pentixafor PET/CT data for sensitivity, specificity and accuracy of visual analysis. This information was then compared to adrenal CT and adrenal venous sampling results.

^{68}Ga-pentixafor PET/CT showed superior sensitivity, specificity and accuracy (90.2%, 72.7% and 86.5%, respectively) in identifying surgically eligible primary aldosteronism patients compared with adrenal CT (73.1%, 53.8% and 68.3%, respectively). It was also able to predict surgical outcomes better than adrenal venous sampling (82.4% vs. 68.86%).

"The significance of this work lies in its potential to change how we diagnose and treat primary aldosteronism patients with tiny adrenal nodules. For patients, this means an improved chance of getting the right treatment, especially when it comes to deciding whether surgery is necessary. Accurate diagnosis is crucial because it leads to more effective treatments, less unnecessary surgery and overall better health outcomes. It's about offering patients a more personalized and precise medical approach," stated Huo.

More information: Jie Ding et al, Clinical Value of68Ga-Pentixafor PET/CT in Subtype Diagnosis of Primary Aldosteronism Patients with Adrenal Micronodules, *Journal of Nuclear Medicine* (2023). DOI: 10.2967/jnumed.123.266061

Provided by Society of Nuclear Medicine and Molecular Imaging

Citation: New PET/CT technique accurately diagnoses adrenal gland disorder, informs personalized treatment plans (2024, January 18) retrieved 28 April 2024 from

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.