Image-Derived Enzymatic Adrenal Lateralisation of Primary Hyperaldosteronism (IDEAL) - Testing a Medical Scan with a New Dye to Detect Abnormal Hormone Production in the Adrenal Glands

What was the study about?

Some people develop high blood pressure because they produce too much of a hormone called aldosterone, which is made in the adrenal glands. In many of these cases, only one of the two adrenal glands overproduces aldosterone. If doctors can identify which adrenal gland is affected, they can often cure the condition by removing it.

This study tested a medical scan known as PET/CT using a new dye called [^{18}F]AldoView. The aim was to determine whether this scan could accurately detect adrenal glands that overproduce aldosterone and help decide which gland should be removed.

What did we do?

We scanned 17 patients who were scheduled to have surgery to remove one of their adrenal glands because they produced too much aldosterone. Study participants were given an injection of [^{18}F]AldoView and then underwent a PET/CT scan to see where the dye accumulated in the body. This helped identify which adrenal glands that overproduced aldosterone.

We also examined the tissue from the surgically removed adrenal glands under a microscope and compared the findings with the scan images. Patients were followed up after surgery to monitor changes in their blood pressure and aldosterone levels.

What did we find?

- The scan was safe, with no side effects from the [^{18}F]AldoView dye.
- It clearly showed which adrenal glands that were overproducing aldosterone.
- We found that the best time to take the scan was about 35–45 minutes after administration of the dye.
- The scan results closely matched those of adrenal vein sampling (AVS), a test already used in hospitals, but the scan was less invasive, is much quicker, and potentially easier to use.
- The scan results also aligned with laboratory tests on the removed adrenal glands, confirming the accuracy of the PET/CT scan with the [^{18}F]AldoView dye.

Why is this important?

This new scan could help doctors quickly and safely identify which adrenal gland is causing the problem. It may allow more patients to receive the correct surgery and reduce their need for blood pressure medication. Additionally, the scan has the potential to be more comfortable and accessible than current diagnostic tests.

What happens next?

We now plan to conduct a larger trial to confirm these findings and further investigate how the scan can help predict patient outcomes after surgery.