

delineated when the blood circulation is maintained. The transplanted cadaveric kidneys were chosen as the objects of TPAC application. Sixty to ninety minutes after intravenous administration of 1–3 mCi of TPAC, anterior and lateral views of renal transplants were scanned with scintillation camera. A cadaveric kidney, transplanted to a 36 year old female, was clearly delineated by TPAC even though her scan was performed on the second postoperative day when urine volume was only 77 ml/day. A renogram of I-131 iodo-hippurate performed on 14th postoperative day only suggested the accumulation of radioisotope in the kidney with very little function. It has been difficult to prove the patency of major vessels during anuric or oliguric phase, which has often been experienced in cadaveric renal transplantation. TPAC scan has a great value to ascertain the blood circulation in the

graft even in the anuric period. An infarction in the transplanted cadaveric kidney of 47 year old male was clearly demonstrated by TPAC. His Hg-203-chlormerodrin scan, performed prior to TPAC, showed reduced accumulation of radioisotope in the upper part of the graft, but poor delineation of kidney image prevented us from definite interpretation of infarction. Another advantage of TPAC, superiority in scan images among renal scanning agents, was applied to polycystic kidneys. Comparing TPAC with Hg-203-chlormerodrin scans of polycystic kidneys, TPAC is better in quality of scan images. The lateral views of polycystic kidneys in TPAC camera imaging give additional informations to scan interpretation. TPAC was selectively applied to the cadaveric renal transplants and the polycystic kidneys, and proved to be an useful scanning agent.

a Clinical Evaluation of the ^{99m}Tc -penicilamin Acetozolamide for Renal Scanning

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Various radiopharmaceuticals are now in use as a renal scanning agent. Clinical evaluation was made on images obtained by γ -camera scan using ^{99m}Tc -penicilamine acetozolamide complex (TPAC) developed by S. Halpern.

Four to eight mCi of TPAC was administered intravenously to seven cases with normal renal function and 23 patients with urological renal disorder, and γ -camera imaging was performed.

Results:

- 1) In the case of patients with normal renal function, RI perfusion in renal blood was observed within one minute after injection.
- 2) Even in the case of markedly impaired renal function such as uremia, TPAC-scintiphotos

showed visual images for morphological findings.

- 3) In differential diagnosis of renal mass, TPAC scanning is advantageous in that the perfusion phase and the functional phase can be obtained simultaneously.
- 4) In clinical evaluation, the image by TPAC is different from that by Chlormelodrin and RI-Hippuran, so that careful attention must be paid to interpretation of images.
- 5) Enabling distinct renal images to be obtained at a low radiation dose, TPAC is an excellent scanning agent although its preparation involves complicated procedures.