

Diagnostic Value of ^{169}Yb -DTPA in Intracranial Diseases

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^{169}Yb -DTPA was injected intravenously or intrathecally and GAMMA SCINTILLATION CAMERA was used the diagnosis of various intracranial diseases.

Conventional scintiphotography was at first carried out by intravenous injection mainly for the localization and diagnosis of brain tumors, to compare with $^{113\text{m}}\text{In}$ -DTPA used to date. 1600 word memory system was combined with GAMMA SCINTILLATION CAMERA to determine tumor-brain concentration ratio of various brain tumors. In general, the ratio of ^{169}Yb -DTPA into the tumor appeared

to be less than that of $^{113\text{m}}\text{In}$ -DTPA.

Circulatory dynamics were studied in chronological sequence by cisternography through the intrathecal administration of ^{169}Yb -DTPA in diseases due to circulatory disturbance of CSF. Compared to the RIHSA used to date in this kind of diagnostic procedure, complications such as aseptic meningitis were rare and the administration of a large dose was possible, so that a sharp image was obtained. Thus radioisotope seems to be an excellent agent for this purpose.

Studies of Cerebrospinal Fluid (CSF) Dynamics with Intrathecally Administered ^{169}Yb -DTPA

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Recently, RI-cisternography has become a widely used method for the morphological assessment of CSF dynamics. In particular, ^{169}Yb -DTPA has been found to be a better radiopharmaceuticals for cisternography than ^{131}I -RISA and $^{99\text{m}}\text{Tc}$ -albumin. This is a preliminary report of a study on how clearly we can see the CSF dynamics by Yb-cisternography in various cases. After measuring CSF pressure, we injected 0.5 mCi of Yb-DTPA into the lumbar subarachnoid space. Then, scintiphotos and blood samples were taken at varying time intervals in order to determine the amount of activity of Yb-DTPA transported to the blood.

When CSF pressure was under 100 mmH₂O, concentration curves were plotted in the lower

levels at about 1/5 height of normal cases. On the other hand, when the transport of Yb into blood was rapid and little went up into intracranial space, the CSF pressure was inclined to be somewhat higher. The cases in which a reflux of Yb into the ventricular systems occurred were those of subarachnoid hemorrhage after rupture of intracranial aneurysms or after operation on basal brain tumors. These intraventricular cases included also some cases of low CSF pressure, so the fall of CSF formation in ventricular systems may be an important cause as well as subarachnoid hemorrhage. In these cases, when ventricular dilatation is strong, it was observed that the concentration curve came to show high levels when a great deal of Yb appeared

in the ventricles. This may mean that CSF is absorbed in the ventricle, too.

As mentioned above, the formation and absorption of CSF are influenced by a change in CSF pressure and by subarachnoid hemorrhage. And it is assumed that about the re-

gions of CSF absorption, not only intracranial but also the spinal subarachnoid space play important parts. So unlike RISA, Yb-cisternography shows us CSF dynamics in all subarachnoid spaces in detail.