150

Clinical Application of 18F6Urd as a Nucleic Acid Metabolism Tracer
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The basic investigation into the potential usefulness of F-18-fluorodeoxyuridine(F6Urd)  
as a nucleic acid metabolism tracer had already been reported in the previous meet- 
ing. This time, F6Urd was clinically applied to four brain tumor cases (3 malignant brain  
tumor and 1 astrocytoma Gr.II). The image of positron emission computed tomography (PECT)  
and differential absorption ratio (DAR) were obtained by ECAT II. In malignant  
brain tumor cases, the image of PECT revealed high accumulation of F6Urd in the tumors.  
The DAR of the tumor was about three times higher than that of contralateral brain  
tissue. On the other hand, in astrocytoma Gr.II, the image of PECT failed to show  
high accumulation of F6Urd. The DAR was almost the same as that of contralateral  
brain tissue. These results suggest that F6Urd will not only be a useful nucleic acid  
metabolism tracer but also a tracer for making a new grading for brain tumor.

152

CEREBRAL BLOOD FLOW AND METABOLISM IN DEMENTIA.  
STUDIES WITHPOSITRON EMISSION TOMOGRAPHY USING  
0-15.
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Cerebral blood flow and oxygen metabolism were studied in three normal aged subjects, three cases of Alzheimer disease (AD), four cases of Senile  
Dementia of Alzheimer Type (SD) and twelve cases of Multi-Infarct Dementia (MID) with Positron Emission  
Tomography using 0-15.  
The CBF and CMRO2 of gray matter in AD, SD and  
MID were significantly low compared with the values of normal aged subjects. The CBF and CMRO2 in AD  
were low compared with those of SD, although the pathogenic mechanism of dementia in AD was considered  
to be the same as that of SD.

The decreases of rCBF and rCMRO2 in MID compared from those of normal subjects were most remarkable  
in frontal cortex. The distribution pattern of rCBF and rCMRO2 in MID showed relative hypofrontal  
pattern. There were significant correlations between the severity of dementia and the reductions  
of CBF and CMRO2 of frontal cortex in MID.

The decreases of rCBF and rCMRO2 in AD and SD  
compared from the values of normal aged subjects  
were most remarkable in temporal cortex, and the distribution pattern showed relative hypotemporal  
pattern.

The impairment of mental function in MID must  
have been caused by the decreased neuronal activity of frontal association cortex, and the mental  
impairment in AD and SD might have been caused by the decreased function of temporal cortex.

153

LOCAL CEREBRAL CIRCULATION AND METABOLISM  
in a Patient with Herpes Simplex Encephalitis.

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Using positron CT and 0-15-labeled gases, we determined serial changes of  
local cerebral circulation and metabolism in a patient with herpes simplex encepha- 
litis confirmed by serological examinations, who was 29-year-old woman. Posi- 
tron CT measurements were performed at  
about 2 weeks, 4 weeks and 6 months after  
onset of symptoms.

In about 2 or 4 weeks after onset of  
symptom, the lesion of herpes simplex  
encephalitis on X-ray CT showed low OEF  
(luxury perfusion) and the lesion with  
marked contrast enhancement on X-ray CT  
revealed increased CBF and CBV. In about  
6 months after onset of symptoms, lCBF and  
ICBV settled down below the normal values.  
Though from the point of reversibility of  
brain tissues CBF and OEF were not useful,  
CMRO2 was a possible parameter to indicate  
the reversibility of brain tissue. The  
value of possible threshold of CMRO2  
was suggested about 2 ml/100 ml/min.

These results suggest that measurement of  
cerebral circulation and metabolism was  
useful for herpes simplex encephalitis,  
especially CMRO2 was a useful parameter  
for predicting prognosis of the disease.