CLINICAL STUDIES WITH MEDICAL CYCLOTRON

IN NAKANO NATIONAL CHEST HOSPITAL, Rokuro Izuchi, Masaki Ito, Nakano National Hospital, Tokyo.

Positron emission tomography was performed with 20 volunteers and 31 patients with various disease in central nervous system. The used radiopharmaceuticals for this study were 11-CO2 and 11-C-glucose which was prepared by photosynthesis.

Cerebral activity distribution in these patients showed characteristic patterns respectively. Recently, a technique has been developed to measure regional values of cerebral radio-activity using positron emission and transmission tomography. We measured the regional distribution of glycogenic metabolites in brain by next formula.

\[ D_v = \frac{S_e}{K_e \cdot C_g} - S_g \]

Dv = mass of glycogenic metabolites.
Se = counts of nine pixels in image.
Ke = calibration factor.
Cg = counts of 1 ml blood.
Sg = values of blood sugar per ml.

This is not satisfactory quantitative method, but it will help to give a better understanding of regional function in brain.