

279

RELATIONSHIP BETWEEN EFFECTIVE DOSE OF ^{18}F FDG AND TOXICITY OF FDG. H.Fukuda, T.Matsuzawa, J.Hatazawa, M.Ito and K.Yamada. The Res. Inst for TB & Cancer, Tohoku Univ.

^{18}F FDG is a useful radiopharmaceutical for the measurement of glucose consumption in brain and heart and for cancer detection. However, it is probable that ^{18}F FDG give damage to these tissues because of its inhibitory effect of glucose metabolism. LD₅₀ of FDG was reported as 600 mg/kg in rat and mouse. LD₅₀ of 2-deoxyglucose was also reported as 2500 mg/kg in rat. Our study showed that LD₅₀ of 2-deoxyglucose was also 2500 mg/kg, and minimum growth inhibitory effect to cultured melanoma cells was observed at the concentration of 10 ug/ml. On the other hand, FDG dose in clinical PET study was within 1 mg per person. From these facts, FDG dose in clinical study was one-thousandth of toxic dose at best. No findings were observed in EEG and ECG study of patients who received ^{18}F FDG.

280

THE STUDIES OF THE TUMOR UPTAKE OF F-18-2-FLUORO-2-DEOXYGLUCOSE AFTER X-RAY IRRADIATION. Y.Abe, J.Hatazawa, H.Fukuda, K.Yamada, T.Sato, T.Matsuzawa, T.Takahashi*, K.Ishiwata*, and T.Ido*. Department of Radiology and Nuclear Medicine, The Research Institute for Tuberculosis and Cancer, Tohoku University. Sendai. *Cyclotron and Radioisotope Center, Tohoku University. Sendai.

The changes of the tumor uptake of F-18-2-fluoro-2-deoxyglucose (FDG) was observed after irradiation. Experiments were performed using AH109A bearing rats. Autoradiogram of the tumor with necrosis showed the no uptakes of FDG in necrotic tissue. Therefore, uptakes of the FDG was occurred only in viable cells. Tumors were irradiated various doses. The irradiated tumor uptakes of FDG were decreased with time. When tumor regrowth began, the uptake of FDG was increased at the level of the un-irradiated tumor. So we concluded that the change of the tumor uptake of FDG was directly related to the tumor regrowth and tumor cell death.