Studies on the Measurement of Body K-40 and Cs-137 in Normal Subjects in Kyoto District

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The purpose of this paper is to describe the relationship of total body potassium and cesium-137 in normal individuals with age and sex. The measurements reported here were made with a plastic scintillation whole body counter of Kyoto University from August 1968 through February 1969. Subjects measured consist of 515 of males aged 6 to 93 and 530 of females aged 6 to 83 in Kyoto district. Counting efficiency of this counter is 12.5 cpm/g-potassium for the KCl phantom and 83.4 cps/nCi for the $^{137}$Cs phantom. The spectrometric half resolution is 18.5% for $^{40}$K and 31.3% for $^{137}$Cs. The subjects were counted for 15 minutes. In males, up to about age 18 to 20, the potassium content and body weight both increase; the body weight then remains constant with increasing age, and in contrast the potassium content decreases from 125.5 g at age 18-19 to 83.5 g at age over 70. In contrast to males, the potassium content in females reaches maximum of 89.9 g at age 14-15 and then decreases with increasing age. In contrast to potassium content, body weight remains constant after adolescence. The potassium concentration (g-potassium/Kg-body weight) showed the similar tendency as potassium content for both sex in relation to age. Decrease of the potassium concentration after puberty was considered to be caused by a reduction of the lean body mass. As the mean body weight after puberty is nearly constant, it follows that the reduction of the lean body mass is accompanied by an increase of fat content. The $^{137}$Cs content increased with increasing age up to third decades and then gradually decreased. The maximum mean cesium burden was 2.5 nCi for males and 1.8 nCi for females. There exists a significant positive correlation between body potassium content and $^{137}$Cs burden. $^{137}$Cs was also significantly correlated with the body weight.

A Study on Purity Examination of Radiopharmaceuticals, Including Triolein, and Oleic Acid

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Since 1967, series of purity examination of some radiopharmaceuticals, including Triolein, Oleic Acid, M.H.P., Hippuran and Chloromethadrin, have been done in our laboratory in order to attain the right interpretation of the results. This time the purity examination was limited to Triolein and Oleic Acid only.

To assay the purity, actigrams and auto-grams of both Triolein and Oleic Acid were taken as a procedure.

From our earlier studies in 1967, we acknowledged that, as studied by N. Tuna (1963) and his associates, some of the commercial radiopharmaceutical products were eventually, hardly usable due to their impurity, whereas some proved to fit for use: in our examina-