Skeletal Dose Estimation of the Patient Administered Ytterbium-169 Citrate by MIRD Method

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Ytterbium-169 citrate has recently been put into medical use for external imaging of tumor tissues. The skeletal absorbed dose received by the patient was estimated in accordance with the MIRD Committee method. 500 micro-curie intravenous injection proved to result in 13 rads in skeleton, with the most important contribution of the internal conversion electrons emitted in the electron capture decaying process of the nuclide. If the electron components (internal conversion electrons and Auger electrons) are to be weighted by the relative damage factor (n=5) as was recommended by the ICRP, the skeletal dose equivalent for 500 micro-curie injection turns out to be 46.5 rems. The contribution of the penetrating radiations originating in other organs was found to be negligibly small. The average total body dose was approaximately 2 rads.

Experience of the Radioisotope Scanning in the Bone and the Soft Tissue Tumors

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^{67}Ga-Citrate, ^{169}Yb-Citrate and ^{85}Sr were used in the scanning of the primary or secondary tumors of the bone and soft tissue to obtain the site or enlargement of the lesion and to determine the radiation field.

30 cases in ^{67}Ga (0.5～2 mCi.), 6 cases in ^{169}Yb (300～500 μCi.) and 2 cases in ^{85}Sr (100 μCi) were examined.

Result is as follows.