725027

R

August 26, 1955

Committee for the Use of Isotopes
in Humans
L. K. Dahl, M.D.

BEST COPY AVAILABLE

Proj. H40: Use of Mg^{28} as a
tracer in hospitalized patients

Request is made for authorization for the use of Mg^{28} in tracer quantities in selected hospitalized patients.

In conjunction with the research on hypertension in humans, studies on magnesium have been initiated because of the known relaxing effect of this ion on smooth muscle as well as its importance as a coenzyme in phosphorylation processes. Studies will be made on selected individuals both with and without hypertension.

It is proposed to administer the isotope intravenously and make suitable collections of blood, urine and stool subsequently.

The isotope has a t/2 of 21.3 hrs., and has a somewhat complex decay scheme, with both beta and gamma emissions to radioactive Al^{28}; this in turn has a t/2 of 2.3 min., emits beta-gammas, and thence decays to stable Si^{28}.

On the assumption that 100 μc Mg^{28} might be given to a 150 lb. individual, the following dosages may be calculated, allowing all of the isotope to decay before excretion:

		rem/d	Dose ∞
Mg^{28}	β	0.015	0.019 rep
	γ	0.053	0.067
Al^{28}	β	0.09	0.115
	γ	0.07	0.090
Total		0.228	0.291

From this it may be calculated that 0.3 rep would be delivered by 1.5 μc/Kg.

The Medical Research Center
Brookhaven National Laboratory
Upton, L. I., New York

1175992

Records Holding Area Bldg. 494
REPOSITORY ~~Med. Dept Rc Rm~~
COLLECTION Robertson file
BOX No. Med. 12
FOLDER ROBERTSON

It is requested, therefore, that permission be given to administer the isotope Mg^{28} to selected individuals in tracer amounts which in no case will exceed 0.3 rep/wk and only under exceptional instances will attain this level.

L. E. Farr, M.D.

E. E. Stickley, Ph.D.

J. S. Robertson, M.D.

E. P. Cronkite, M.D.

R. A. Love, M.D.

V. P. Bond, M.D.

The Medical Research Center
Brookhaven National Laboratory
Upton, L. I., New York

Records Holding Area Bldg 494
REPOSITORY Med. Dept RCRM
COLLECTION Robertson file
BOX No. Med. 12
FOLDER ROBERTSON

1175993