SUMMARY FACTSHEET HUMAN EXPERIMENTATION SFS1.001

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Project Category: Plutonium Excretion Studies

Funding Source(s): Manhattan Engineer District (MED)
Atomic Energy Commission (AEC) (one patient)

Institution(s): University of Rochester, University of California, University of Chicago, Clinton Laboratories (Oak Ridge)

Principal Investigator: Dr. Robert S. Stone

Objective(s) of Project: To determine the excretion rate of plutonium in man, in order to provide the information necessary for setting safety criteria for the several thousand MED workers handling plutonium.

Short Description: During the period 4-10-45 to 7-18-47 a total of 18 patients with an estimated life expectancy (because of existing disease) of less than 10 years were injected with on the average 0.3 microcurie of plutonium-239 (range: 0.01 to 6 microcurie) at: MED Hospital, Oak Ridge, TN (1 patient); Strong Med. Hosp., Rochester, NY (11); Billings Hosp., U. of Chicago, IL (3); Univ. Hosp. UCSF, San Francisco, CA (3).

The patients included 13 males and 5 females. By race there were 15 whites an 5 blacks. The ages of 13 were 45-65 years, 4 were 18-45 and one was 4 years old. Body excretions were collected and measured for plutonium content for several weeks after injection. These data have been analyzed many times in efforts to find the best mathematical parameters.

Follow-up Data: Six of the patients died in less than 1 year, three in 1 to 3 years, three in 8 to 14 years, and four after 20 years. One is still living (Oct. 1983) and the status of one is unknown. None of the deaths was related to plutonium exposure and there is no evidence to suggest that plutonium injection influenced the course of the diseases. The bodies of four of the deceased patients have been studied for residual plutonium content. With the excretion data these studies provide a basis for estimating plutonium body burdens from plutonium urinary excretion rates.

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