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GENERAL ELECTRIC COMPANY

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HANFORD ATOMIC
PRODUCTS OPERATION
RELATIONS OPERATION

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June 12, 1962

H. D. Bruner, M. D.
Assistant Director for
Medical and Health Research
Division of Biology and Medicine
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear Dave:

I was pleased to receive your letter of June 5th offering encouragement to us in obtaining all possible information on methods of treatment for eliminating plutonium from the body. You and Chuck Dunham have given us encouragement in this direction all along and this is very much appreciated.

We have been quite anxious for some years to treat an acute case of plutonium deposition with DTPA but the opportunity has not arisen. The cases which we might have treated were those involving deposition within the flesh and which are complicated by slow absorption, making it difficult to interpret the effect of therapy upon the elimination.

Dr. Fuqua and Dr. Earl have just had an interesting case which we hope may add to our knowledge. This individual had a rather deep cut on the finger contaminated with plutonium nitrate. Measurements indicated about 25 body burdens. A rather wide dissection eliminated about 24 body burdens and a further dissection eliminated all but about 15% of a body burden. The latter excision was of such extent as to require skin grafting to cover the defect and, immediately following the skin graft, we gave one gram of DTPA intravenously and followed this with a gram of DTPA for the four succeeding days. Since the amount left in the wound is extremely small, we think this may give us a pretty good opportunity of evaluating therapy in the acute case. We are encouraging further studies on animals to determine the permissible limit or the radiation guide for plutonium deposited in flesh. The best present criteria is based on the work of Brues, Finkel and Lesko done at Argonne National Laboratory in 1947. They injected several hundred mice with approximately 1 microgram of plutonium and produced sarcomas in about one-third of all of the cases. If one allows only a safety factor of 10, one ends up with about .004 microcuries of plutonium as a radiation guide for what may be safely left in the tissue. Hence, it is our policy to surgically remove any detectable amount of plutonium, no matter how small, if this may be done without too much damage to the local area or hazard to the individual.

REPOSITORY DOE Rec Hold Cent
COLLECTION R6 326
BOX No. 976-78-3 #4
FOLDER MHS (CIA I) (967-1960)

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GENERAL  ELECTRIC

H. D. Bruner, M. D.

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June 12, 1962

We have never had to decide whether to remove a finger or hand, or even an arm, in order to remove a fairly large quantity of plutonium but some day we will perhaps have to face this issue and would be happy to receive any suggestions which you may have. At the moment apparently our biggest need in evaluating patients with plutonium deposition is some method of measuring the amount by use of the whole body counter. Suggested methods appear promising but will require a lot of study and it seems difficult to get priority for this type of work.

We are following up your suggestion to make a model of our proposed hot cell for handling patients with embedded radioactive material emanating penetrating radiation. We have proposed as a first step to make a full size plywood cell with arrangements for varying the superstructure for protecting the operating team and actually letting the surgeons indicate what type of structure is most convenient for them to work on patients. Discussions with occupational physicians, including those from the AEC, indicate a considerable lack of understanding and attention being paid to this problem. I think Bill Doran plans to bring this matter up with further discussion at our next meeting of occupational physicians.

None of the individuals exposed to radiation in the nuclear incident at Hanford have had any symptoms referable to the exposure except the one individual with the greatest exposure who complains of some tiredness. We did have quite a little trouble with one individual whose skin failed to heal following the testicular biopsy and following efforts to secure healing he had considerable hemorrhage which kept him in the hospital for more than a week. He has now almost completely recovered from this episode.

We are collecting the material from studies of the blood, urine, etc, and in due time will report this information as I think this is the only case in which people have had this degree of exposure to radiation and have been wearing dosimeters capable of giving a reasonably good approximation of the dose which they received. Correlation of this with the laboratory findings should be of value. We will keep you and Bill informed of any items of interest as they come up.

With kind personal regards,

Sincerely yours,



W. D. Norwood, M. D., Manager
Occupational Health Operation

WDN:vl

cc: WT Doran, M. D.

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