

RADIATION EXPOSURE OF PERSONNEL HANDLING MONEL METAL NASOPHARYNGEAL RADIUM APPLICATOR. H. J. RUBIN, B. M. KULLY and R. D. FINKLE, *Ann. Otol., Rhin. & Laryng.* **59:90** (March) 1950.

In a carefully monitored series of treatments with the 50 mg. monel metal nasopharyngeal radium applicator Rubin and his associates found that total body irradiation did not exceed 6 millicuries per treatment for the physician and his assistant. Average exposure of the entire length of both index fingers of the physician was 26 millicuries and of several finger tips 50 millicuries per treatment. Pending official recommendation the authors adopted 600 millicuries per week as permissible exposure for hands and fingers. In accordance with this value the maximum number of treatments which one physician may administer weekly by their technic is 12, finger tip exposure and not whole body exposure being the limiting factor. The results obtained suggest that generally accepted recommendations concerning the number of treatments that physicians may administer without endangering themselves are too high for safety. Lead shields or other accessories for the radium applicator or modifications in its construction might reduce the dose delivered to the physician's finger tips and thereby permit a larger number of treatments. If a technic differs appreciably from the one used by the authors, it should be monitored to ascertain the number of treatments that can be given without exceeding tolerance.

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RADIATION BURNS, INCLUDING VOCATIONAL AND ATOMIC EXPOSURES: TREATMENT AND SURGICAL PREVENTION OF CHRONIC LESIONS. J. B. BROWN, F. McDOWELL AND M. P. FRYER, *Ann. Surg.* **130:593** (Oct.) 1949.

The authors consider in detail the management of acute and chronic lesions resulting from vocational and therapeutic exposure to radiation. Prompt and skilled attention is required because of the disastrous consequences of mismanagement, especially the development of carcinoma.

Conservative management in the form of sedation, rest, control of pain and prevention of infection is indicated in acute burns. Grafting of wounds should be performed as soon as it is felt that a free graft will survive.

Chronic burns are more common and may be frequently seen on physicians' hands. Effective treatment requires excision and repair of the defects with free skin grafts or flaps. Great pains must be taken to preserve existing blood and nerve supply.

Some atomic radiation burns have been seen. These apparently occur as a result of both beta and gamma exposure. The exposure is usually of very short duration and high intensity, with rapid development of damage. Blistering occurs in four to six days and is followed in about 30 days by healing or slough, depending on the exposure. Conservative therapy such as that outlined for acute radiation is indicated.

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RADIOACTIVE WASTE DISPOSAL. JOHN A. AYRES, Atomic Energy Commission Document 2802, no date, 25 pages, declassified Jan. 31, 1950.

In laboratories using radioactive tracers a large amount of liquid wastes having a low level of activity will be produced. In many cases it may be desirable to treat these wastes before they are discharged into the sewers or released in any other manner into the ground or water. Ion exchange is applicable to problems of this sort in that it may be used for the removal of small amounts of ions from very dilute solutions. The problem of removal of radioactive solids from laboratory wastes is complicated by the fact that the wastes are heterogeneous and vary from day to day. The wastes will contain solids, organic solvents, oils, and reagents which may form complexes with metallic ions. The research program to evaluate ion exchange has been divided into several parts,