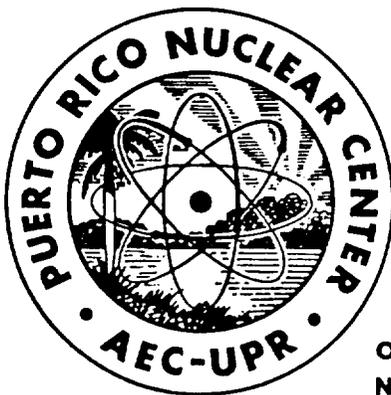


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# PUERTO RICO NUCLEAR CENTER

ANNUAL REPORT 1965



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## RADIOTHERAPY AND CANCER DIVISION

Víctor A. Marcial, M. D., Head

During the year 1965 the Radiotherapy and Cancer Division continued its main activities - education, research, and service in the areas of radiation therapy and cancer. Education is carried out through formal programs and courses offered regularly to physicians and other medical personnel, as described briefly below.

The Radiotherapy Residency Program is designed to prepare qualified radiation therapists and meets the requirements of the American Board of Radiology. The trainees are physicians with a year of internship or equivalent clinical experience. The training period is three years, but trainees are required to take an additional fourth year of supervised practice (preceptorship) before admission to the specialty examinations. Diagnosis of cancer, determination of extent and radiosensitivity of tumors, selection of appropriate treatment, and the planning and conducting of radiological therapy are included in the curriculum. Background in clinical oncology is imparted to residents through supervised work with new, followup, and hospitalized cancer patients. Radiation therapy experience is acquired by working with roentgentherapy machines of various voltages, cobalt teletherapy units, cesium units, and application of radioactive material such as radium, strontium, cobalt, and iridium.

The special short-term radiotherapy training course is prepared according to the needs of the individual desiring training. Participants may engage in research and may participate in all training activities of the Division, but they are not given responsibility for patients.

The cancer course for medical students is designed to acquaint future physicians with clinical problems in cancer and radiation therapy and with current research in these fields.

The Radiotherapy and Cancer Division continues its collaboration with the Puerto Rican League Against Cancer by serving as the Radiotherapy Department of the Dr. I. González Martínez Oncologic Hospital, which is adjacent to the Puerto Rico Nuclear Center Bio-Medical Building in the Puerto Rico Medical Center. At the academic level the Division functions as the radiotherapy section

and at the same time to obtain lithium fluoride dosimetry as verification. Young adult mice will also be irradiated with the  $^{137}\text{Cs}$  unit and the 300-kv x-ray unit when this can be arranged at the Oncologic Hospital.

The following projects have been completed.

1. Adenocarcinoma of the Cervix Uteri. This retrospective clinical study was made to determine whether adenocarcinoma of the cervix uteri is more radioresistant than epidermoid carcinoma of this structure. Analysis of data from 76 patients showed that the five-year survival in this group was no different from that encountered in cases of epidermoid carcinoma. It is noteworthy that in all stage I cases treated from October 1956 to the end of 1960, the disease has been controlled with irradiation.
2. Lymphangiography in Cancer Patients. Early in fiscal 1965 lymphangiography was introduced as a method of helping the radiotherapist localize malignant lesions prior to irradiation, as described in the Annual Report 1964, page 50. So far, 18 lymphangiographic studies have been made, and the technique has proved of great value in cases with lymphoma or carcinoma of the uterine cervix.
3. Cancer of the Breast and the Role of Radiation Therapy in its Management. This retrospective clinical study was made to determine the value of radiation therapy in the management of breast cancer. Data were analyzed on patients from the Radiotherapy Department of the Oncologic Hospital with a minimum followup period of five years. The results were presented at a symposium of the Puerto Rican Chapter of the American College of Surgeons in February 1965.
4. Orthovoltage Versus Supervoltage in the Treatment of Cancer of the Uterine Cervix. Carcinoma of the uterine cervix is the most frequent neoplasm encountered in the Latin American woman. Its incidence in Puerto Rico has fluctuated between 37.2 and 35.0 per 100,000 women during the past three years. The Oncologic Hospital in San Juan, which serves approximately two thirds of the indigent cancer patients in Puerto Rico, managed 334 cases with invasive cervical cancer from 1958 to 1960; radiotherapy was the treatment of choice. One group was treated with orthovoltage and another with cobalt-60 supervoltage preceding curietherapy. Results obtained with these two modalities of treatment have been analyzed. The group treated with cobalt-60 supervoltage in general fared

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