

SUMMARY FACTSHEET HUMAN EXPERIMENTATION - SFS4.001

704275

Project Category: Teletherapy with Particle Beams

Funding Source(s): AEC

Institution(s): (1), (2) Univ. of California, Berkeley
(3) Univ. of California, San Francisco

Principal Investigator(s): (1) J. H. Lawrence, C. A. Tobias
(2) John A. Linfoot
(3) J. R. Castro

Objective(s) of Project: To determine possible beneficial effects in various neoplastic and metabolic diseases

Short Description: (1) In the period 1953-1959 the pituitary glands of patients with advanced metastatic mammary carcinoma or other endocrine related diseases were irradiated with beams from the 184 inch cyclotron at first with the 340 meV proton beam, later with the 900 meV alpha particle beam. Doses of 24,000 to 30,000 rad to the pituitary were given.

(2) Heavy particle irradiation was used (1968) for the irradiation of the pituitary in acromegaly, Cushing's disease, and chromophobe adenomas of the pituitary and in metabolic disease such as diabetic retinopathy, metastatic breast and prostatic carcinoma where these are sensitive to hormonal control through the pituitary or the endocrine end organs of the pituitary. Heavy particle irradiation was used for direct tumor irradiation at other sites in the body where the tumor boundaries can be adequately delineated.

(3) Since 1975, 94 patients with localized unresectable carcinoma of the pancreas have been irradiated using helium and heavier particles.

Follow-up Data: (1) By April 1959, 103 patients had been treated. Clinical and laboratory studies were conducted every 4-8 weeks on survivors. Twenty-nine of the 82 with metastatic carcinoma were living in 1959, the longest being 4 years post irradiation.

(2) Four hundred and twenty six patients have had heavy particle therapy. In the series of 66 patients with acromegaly, 90% have had a complete amelioration of their disease process establishing heavy particle irradiation to the pituitary as being the optimal form of treatment at the present time. Highly successful results have also been achieved in patients with Cushing's disease and in 10 patients with chromophobe adenomas. The results in diabetic retinopathy are promising, but require longer follow-up for definitive evaluation.

REPOSITORY DOE-FORRESTAL
COLLECTION MARKEY FILES
BOX No. 2 OF 6
FOLDER OTTINGER/MARKEY

1003093

SFS4.001 (con't)

(3) Many patients proved to have occult liver metastases manifested within 9 months post treatment. In addition, local and regional control of the primary neoplasm (approx. 20%) has been difficult to obtain even with doses of 6000 rad in 7 1/2 weeks. Gastric and biliary obstruction have required surgical bypass procedures since irradiation has not been successful in relieving obstructive symptoms. Evidence of gastrointestinal injury has been present in postradiation therapy in approximately 10% of patients.

1003094