

The Sloan-Kettering Project

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The Sloan-Kettering Institute for Cancer Research, 410 E. 68th St. New York was first contracted by the AFSWP in 1954 to study the responses of humans to ionizing radiation. The program was entitled "The Study of the Post - Irradiation Syndrome in Humans."

The principal investigator was J.J. Nickson, MD initially assisted by Henry J. Koch Jr, MD. Dr. Nickson had had wide experience in the ionizing radiation field previously at the University of Chicago.

The study began in 1954 and continued through the life of the AFSWP. When the AFSWP became the DASA in 1959 the program was continued under the same title. In 1962 the title was changed to "Medical Aspects of Ionizing Radiation Effects of Total or Partial Body Radiation"

As in other programs the AFSWP furnished the funds but the contracts were administered by others. In this case the contract was administered by the Research and Development Board, Office of the Surgeon General Dept. of the Army. The contract information (that is available at present) is listed in the following:

1. 12 Feb '54 - \$15,000 - DA-49-007-MD-533
2. 29 Jul '55 - \$19,977 - DA-49-007-MD-669
3. 1956 - ? - DA-49-007-MD-669

4. 1957 - \$21,892 - DA-49-007-MD-910
5. 1958 - \$21,912 - DA-49-007-MD-1022

During the DASA portion of the study available information on contractual details are listed below:

1. 14 July '59 - \$13,340 - DA-49-146-XZ-037
2. 13 Jan '61 - \$39,410
3. 1962 - \$40,482 - ?

During 1962 the title was changed to "Medical Aspects of Ionizing Radiation Effects of Total or Partial Body Irradiation".

4. Mar '63 - \$42,000 - ?

The contract was discontinued on 31 Jan, 1964.

From the beginning of the study until Mar 1955 13 patients were studied following total body irradiation with doses ranging from 20 to 150R. Three of the patients were given two courses of total body irradiation. The source used was 1 Mev x-ray with an HVL of 3mm of lead. Information applicable to these patients is given in Table 1.

During the Apr '55 to Mar '66 time interval, five patients were given total body

exposures using the same radiation source. Four patients were given 150R and one 85R. Information on these five cases is noted in Table II.

There have been no reports found for the period April '56 to Oct '57.

One abstract is available for the period of Nov 1, '57 to Jan 31, '58. Two subjects are noted. The entire period from Nov 1, '57 to Oct 31, '58 is covered by another report. Four patients were given total body radiation with the same radiation source. One patient was given Na^{24} in addition. Table III summarizes these patients.

During the period from Dec 1, 1958 to Dec 31, 1959, seven subjects were studied. Four of the seven had fractionated doses varying from 25 R/day for five days to two doses of 50R with six weeks separation. Three patients received total body doses of 130R, 125R, and 88R respectively. Blood and biochemical studies were performed. Applicable information for these subjects is shown in table IV.

The next report on which information is available covers the period from Jan '60 to Jan '61. Five subjects were given total body radiation using a 2 Mev Vande Graaf generator. Other subjects under radiation therapy were given head only additional radiation to determine EEG responses to radiation. EEG measurements were made on three of the five individuals noted above. Information applicable to these subjects is shown in Table IV and V.

No reports on the experimental results from Feb 1, '61 to completion of the contract on

Jan 31, 1964 have ^{not} been found.

Table 1.

SUBJECT	DISEASE	DOSE (R)	*FOLLOW UP
YD	chrlymphatic leukemia	20R(TB)	3 wks
OD	Hodgkins	25R(TB) 75R(TB)	over 1 mo.
VM	lympho-sarcoma	120R(TB)	few wks
A MacA	lympho-sarcoma	120R(TB)	over 2 mos.
SF	CA stomach (metastatic)	120R(TB)	over 1 mo.
BC	CA Cervix	150R(TB)	over 1 mo.
MD	synovioma	150R(TB)	2 wks
MH	CA Vulva	150R(TB)	over 5 mos.
C Le C	CA Cervix	160R(TB) 6000R(PB)	over 1 mo.
DR	Lympho-sarcoma	50R(PB) 50R(PB)	over 1 mo.
HK	Retic, cell sarcoma	150R(TB)	over 2 wks
WJ	Unknown	150R(TB)	over 2 wks
JN	CA Testis	11R(TB) 75R(TB)	several months

*The follow-up time refers only to the noted radiation. All subjects were continued under some sort of therapy.

Table II.
1955 - 1956

SUBJECT	DISEASE	DOSE (R)	*FOLLOW-UP
JS (F)	lymphoma	85R(TB)	2 months
WH (M)	CA kidney	150R(TB)	deceased (3 wks)
SP (WF-40)	CA Ovary metastatic	150R(TB)	over 2 months
KH(WF)	CA Stomach	150R(TB)	over 2 months
WJ (CM)	Retic cell sarcoma	150R(TB)	over 2 months

* Follow-up in this series is the period in which these subjects were studied after total body radiation only.

Table III.
1958-1959

SUBJECT	DISEASE	DOSE(R)	*FOLLOW-UP
MW (-, F)	CA Esophagus	70R (TB)* 50R (TB)	1 year
DV (32, M)	Melanoma	100R (TB)	3 months
EM (42, F)	CA Breast	150R (TB)	32 days
AM (48, F)	CA Cervix	100R (TB)	75 days

* 27 mci Na²⁴

Table IV.
1958 - 1959

SUBJECT	DISEASE	DOSE(R)	**FOLLOW-UP
MG (45, F)	multiple myeloma	125R (TB), 25Rx5	over 2 mos.
JM (62, F)	CA Breast	100R (TB), 50 Rx2	over 3 mos.
US (62, M)	CA palate	130R (TB)	2 mos.
SS (49, F)	CA Kidney	100R (TB), 50 Rx2	3 mos.

* These three subjects were also given electroencephalograms.

** Follow-up refers only to the current radiation

Table V.
1958 - 1959

SUBJECT	DISEASE	DOSE(R)	**FOLLOW-UP
LR (47, M)	Hodgkins	88R(TB)	2 mo.
JC (62, M)	multiple myeloma	125R(TB) 25RX5	40 days
LD (57, F)	CA cervix	50R(TB)	2 mos.
RF (30, F)	mycosis fungoides	25R (TB) +2 shams	1 yr
RF (31F)	mycosis fungoides	90R(TB) 30 Rx3	1yr
MO (29F)	CA colon	50R (TB) 4000R (PB)	40 days

* These three subjects were also given electroencephalograms.

** Follow-up refers only to the current radiation

Table VI.
1960 - 1961

SUBJECT	DISEASE	*DOSE (R)	FOLLOW-UP
TK (60F)	CA breast, metastatic scalp & skull	** 3000R 200R/day	60 days
AB (44F)	CA breast	*** 3000R 100R/day	60 days
WD (62M)	CA mouth	3000R 100R/day	60 days
EG (43M)	CA esophagus	90R 30Rx3	60 days
BS (61F)	CA breast metastatic brain	3000R 150R/day	60 days
AC (63F)	CA breast metastatic brain	3000R 150R/day	60 days
NM (48F)	CA breast metastatic brain	3000R 150R/day	60 days
SM (19F)	Hepatoma	3000R 175R/day	60 days

* These are doses to the head only

** Betatron electrons 10 Mev

*** Betatron electrons 20 Mev

**** Cobalt-60 gamma rays

Bibliography

1. James J. Nickson & Henry J. Koch, Jr. "Study of the Post-Irradiation Syndrome in Humans," AFSWP 74.2; July 1, '54 to Sep 30, '54.
2. James J. Nickson & Henry J. Koch, Jr. "Study of the Post-Irradiation Syndrome in Humans, AFSWP 743; Apr 1, '54 to Mar 31, '55.
3. James J. Nickson, MD. "Post-Irradiation Syndrome in Humans" AFSWP 958, 959, Apr 1, '55 to Mar 31, '56.
4. James J. Nickson, MD. "Study of the Post-Irradiation Syndrome in Humans" AD 202550; Nov 1, '57 to Jan 31, '58. (Abstract only available)
5. James J. Nickson, "Study of the Post-Irradiation Syndrome in Humans", AD-211306; Nov 1, '57 to Jan 31, '58. ~~(Abstract available)~~
6. James J. Nickson, MD. & Arvin S. Glicksman, MD. "The Study of the Post-Irradiation Syndrome in Man;" Annual Report to the DASA-1 Jan '60 - 31 Jan '61.

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1. Reports (AFSWP) for June 1, '50⁶ to Oct 31, '57 have not been found.
 2. DASA reports for Feb 1, '61 to Jan 31, '64 have not been found.