ARM2.950153.011

30 June 1964

Subtask No. 03.082 Subtask Title: Ionizing Radiation Combined With Trauma

Service Project No.: None
Directing Agency: USAMRDC
Laboratory: None
Contractor: Albert Einstein Col. Med.

Project Officer: Col J.D. Goldstein
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Telephone No.: SY 2-2200 x 296

The CLASSIFICATION of the information on this page is: UNCLASSIFIED

OBJECTIVES OR WORK STATEMENT: The ability to provide adequate medical support and treatment of casualties from the nuclear battlefield is dependent upon a thorough knowledge of the relationship of ionizing radiation to other injury, disease, and stress associated with combat in order to evolve sound diagnostic and therapeutic measures. Radiation with other forms of injury will be inflicted on test animals to determine the end result as differentiated from end result of either alone. Where possible, observations will be made of appropriate clinical patients.

PROGRESS AND RESULTS: a. 03.082-01 Anesthesia (Dr. H.L. Zauder) Dogs were anesthetized with diethyl ether, halothane or cyclopropane 7, 14, 21, 28, 45, 60, 75, and 90 days after irradiation with 170 r x-rays. No increase in sensitivity to these agents was observed after the 21st post irradiation day. 03.082-04 Metabolic studies following radiation and trauma (Dr. S.M. Levenson). Irradiated mice were subjected to either ether and tourniquet application or tourniquet alone. With one exception, there were no differences in the mortality 48 hours post irradiation. In another experiment, similar mortalities were 14/59 for irradiated, tourniquetted and anesthetized mice, 0/36 for irradiated and anesthetized group and 0/40 for anesthetized and tourniquetted mice. Partial shielding studies in mice were instituted, and the effects of caging determined. Experiments are currently in progress to determine water, sodium, potassium and chloride shifts after tourniquet release and the effects of revising sequence of irradiation and tourniquet application. 03.082-06 Human Studies (Dr. L.R. Orkin) No report received. 03.082-07 Skin Grafting (Dr. M. Elkin) 84% of grafts applied 2 days post-exposure to 170 r were successful as opposed to about 90% in control animals and 63% of grafts applied 4 days post-exposure. Dogs grafted after 4th post-exposure day expired prior to determination of graft success. All rejects were grossly infected. 03.082-08 Microcirculation (Dr. S. Baez) During the reporting period, effort has been directed towards completion of studies on hemopoietic derangements, determination of microcirculatory derangements following radiation and adjustments of the irradiated animal microcirculation during the course of two anesthetic agents, ether and halothane.

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b. Scope of this subtask is designed to obtain sufficient data on animals to permit an estimation of the problem posed by nuclear battlefield casualties with respect to past non-nuclear experience.

REPORTS PREPARED: None

Interim Reports: None

Estimated Date of Final Report:

1 February 1965

PLANS FOR NEXT PERIOD: Completion of work outlined above. Contract terminates 30 November 1964.

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