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5025

Effects of Mercury Arc Radiation on Nutritional Anemia in Rats.*

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It was reported¹ earlier that white flaming carbon arc and quartz mercury vapor energy had little or no effect on a milk anemia in

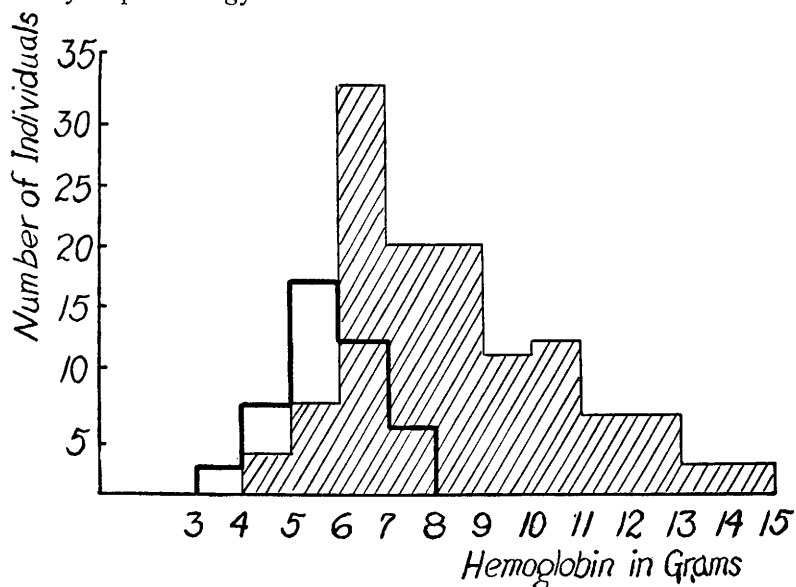


FIG. 1.

Frequency diagram showing the effect of 8 weeks' irradiation with the mercury arc on hemoglobin content. The area under the heavy lines is for non-irradiated, the shaded area for the irradiated animals.

* Aided by a grant from the David Trautman Schwartz Research Fund of Tulane University.

¹ Foster, P. C., *PROC. SOC. EXP. BIOL. AND MED.*, 1929, xxvi, 751.

rats. Most of the observations were made with the carbon arc and continuation of the work has demonstrated a definite effect by the mercury arc, as evidenced by number and size of reds and hemoglobin content and saturation. Doses of about 10 minutes daily at a distance of 35 cm. seem optimal, larger doses showing a tendency to depress growth and produce burns. Doses of less than 5 minutes were practically without effect. Again no definite results have been obtained following exposure to the energy emitted by "Sunshine" carbons.

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Effects of Carbon and Mercury Arc Radiation on Acetylphenylhydrazine Anemia in Dogs.*

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Anemia was produced in 18 adult dogs on a standard diet by subcutaneous injection of acetylphenylhydrazine (pyrodin). Eight animals were irradiated with the flaming carbon arc (Pan-Ray-Arc burning "Sunshine" carbons), 3 with the quartz mercury vapor lamp (Cooper-Hewitt), and the remainder served as controls.

Although there were variations in the reactions to pyrodin and to radiation the regeneration of the red cells was unquestionably faster in the irradiated group. The average count of the control group 23 days after the injection and 15 days after the lowest anemic level was 71% normal. The average value for the same number of irradiated animals that developed a comparable degree of anemia was 85% normal. The carbon and mercury arcs were equally effective. The difference in hemoglobin regeneration is not so marked, the average values 15 days after the lowest anemic level being 77% and 82% normal in the control and irradiated animals respectively. This relatively greater response of the red cells to irradiation was previously reported in studies on hemorrhagic anemia. No significant differences in reticulocytes, whites, platelets and red cell fragility were observed. The development of a tolerance to the drug on repeated injections invalidated attempts to use the same animal for control and irradiation periods.

* Aided by a grant from the Committee on Radiation of the National Research Council.