Lithium Fluoride Dosimetry under Hyperbaric Conditions

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Lithium fluoride irradiated under air and three atmospheres hyperbaric oxygen displays little deviation of its fluorescent qualities. The lithium fluoride dosimetry method thus would appear to be applicable to dosimetry studies under hyperbaric conditions of three atmospheres absolute oxygen.

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An Approach to the Determination of Individual Patient « Soaking » Times

By P. WOOTTON

Optimum patient “soaking” time in hyperbaric radiation therapy depends on the growth of partial pressure of oxygen in the tumor tissues under treatment. Direct polarographic measurement in the tissue has been attempted but lacks spatial resolution and without the use of multiple probes is difficult to interpret. Data on oxygen diffusion and utilization rates in tissue and tumor may be used to calculate the minimum venous partial pressure of oxygen which will produce adequate oxygenation of various “models” of tumors. These data may also be combined with direct measurement with shielded Clark-type electrodes of the venous P_{O2} from the tumor-bearing area to yield an estimate of the required “soaking” time.

Two models will be considered – the first

of the type described by Thomlinson and Gray in their description of tumor cords; and the second

a tumor nodule in which only 1 % of the cells are actively metabolizing at one time. Calculations on average data show that the “soaking” time to double expected radiation sensitivity in both models is considerably less than the time to reach equilibrium P_{O2} in lymph fluid. These calculations could be modified to utilize data on individual patients.