Increasing the breaking strength of wounds exposed to preoperative irradiation using vitamin E supplementation.

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This study investigated if the prophylactic administration of vitamin E, an antioxidant, normalizes the healing of wounds exposed to preoperative ionizing radiation. Vitamin E was given intraperitoneally to three experimental groups of rats every other day at doses of 10, 20 or 40 International Units (IU) until a total dose of 30, 60 or 120 IU respectively was administered. There were three control groups: non-irradiated control, irradiated, non-supplemented control and irradiated, sesame oil-supplemented control. Two days following the last vitamin E or sesame oil injection 600 Rads of local radiation was delivered to the area of wounding. Two hours following the radiation treatment five centimeter long incisions were made in the area of radiation. There was no difference in the growth of the rats. Radiation exposure significantly reduced the breaking strength (g/5 mm wound) of the wounds compared to non-irradiated controls. With increasing levels of vitamin E there was an increase in the breaking strength of wounds (Y = 360.0 + 0.64 X, SE = 0.27, p less than 0.01). This study provides evidence suggesting that vitamin E may help normalize the breaking strength of wounds that receive preoperative irradiation.

PMID: 3654105 [PubMed - indexed for MEDLINE]