A Review of the Dosimetry of 1% Silver Sulfadiazine Cream in Burn Wound Treatment

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A review of the periodical literature relating to burn topical antibacterial agents as listed in the Cumulated Index Medicus from January1, 1965, through November 30, 1992, as well as bound volumes and unpublished material reveals that the optimal dose and mode of deployment of 1% silver sulfadiazine cream in burn wound therapy have not been fully defined. Defining these should provide better control of sepsis in burn facilities. The effectiveness of a burn topical antibacterial agent depends in part upon the extent to which it is absorbed. The process of absorption of a burn topical antibacterial agent may be likened to that of an in vitro model in which the absorption of a test solute through an isolated preparation of the stratum corneum is determined in a diffusion cell. Some of the determinants are the concentration of the solute, the volume of the solvent, the duration of contract with the membrane, the binding tendency of solute to the membrane, the integrity and wetness of the membrane, intrinsic factors of the solute/membrane interaction (distribution and diffusion coefficients) and the adjuvant formulation. Three of these (solvent volume, duration of solute contact and membrane wetness) are readily adjusted. As a possible preliminary to the more effective clinical use of 1% silver sulfadiazine, a ranging of these three factors and of the silver sulfadiazine concentration, should be carried out in a rat model with septic burns. Though control of burn wound bacteria remains overriding importances, the absorption of silver through the burn wound treated with silver sulfadiazine, binding to normal tissues, is a source of rising concern and requires further investigation.