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Influence of 5-fluorouracil on wound healing in diabetes mellitus.

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Wound repair in diabetic patients is characterized by an inadequate sustained inflammatory response and a prolonged diffuse neutrophil infiltration. This leads to massive tissue necrosis and expanding inflammation upon healthy areas. If wound is located on foot, creeping inflammation and tissue damage can result in major amputation. **The purpose** of study was to evaluate the influence of 5-fluorouracil on wound healing in diabetic rat. Linear sutured wounds were created in 33 rats with alloxan-induced diabetes mellitus. Seventeen animals additionally received single injection of 5-fluorouracil (20 mg/kg) after wounding. Twenty two healthy wounded rats served as controls. Tissue samples were obtained on 1, 3, 7, 14 day.

Morphological study revealed that number of neutrophil in wounds was significantly lower in treatment group on day 3 postwounding, whereas lymphocyte infiltration was greater in treatment group on day 3 and 7 comparing to diabetic rats. On day 14 wounds in treatment group contained the same quantity of lymphocytes as controls which was less than one in wounds of diabetic rats. Collagen content was lower in treatment group compared to diabetic rats on 3 and 7 day postwounding but no significant difference was found on day 14. **The results** demonstrate that 5-fluorouracil given in a single dose reduce neutrophil infiltration during first phase of wound healing but enlarge and prolonged lymphocyte infiltration and suspend collagen deposition.

When given to diabetic patients during local operation for foot infection (debridement, minor amputation, skin grafting) drug reduce secondary necrosis formation, increase number of wounds healed by primary intention and decrease risk of secondary amputation.

Further research is needed to investigate its potential benefits and disadvantages, and clear out indication for its clinical use.