

Copper ions ameliorated thermal burn-induced damage in ex-vivo human skin organ culture

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The study assessed the recovery of burn wounds inflicted on skin explants when treated with copper ions, finding that copper ions may prevent or reduce the deterioration and increase in size of burn wounds.

Round 0.8-mm diameter burn wounds were inflicted on skin explants donated by healthy surgery patients.

Immediately following injury and every following 48 hours, saline only or containing 0.02 or 1 μ M copper ions were added onto the skin explant burn wounds and cultured up to 27 days after wounding.

Exposing the wounded sites immediately after burn infliction to 0.02 or 1 μ M copper ions reduced the deterioration of the zone of stasis.

The presence of the copper ions reduced the increase of pro-inflammatory cytokines (interleukin (IL)-6 and IL-8) and transforming growth factor beta-1. Re-epithelialization of the skin tissue and increased collagen fibers was also found.

“..evidence...supports the beneficial role of local copper administration for the treatment of thermal burns with emphasis on the reduction of the burn area at early periods of the healing process and the accompanying inflammatory process.”

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