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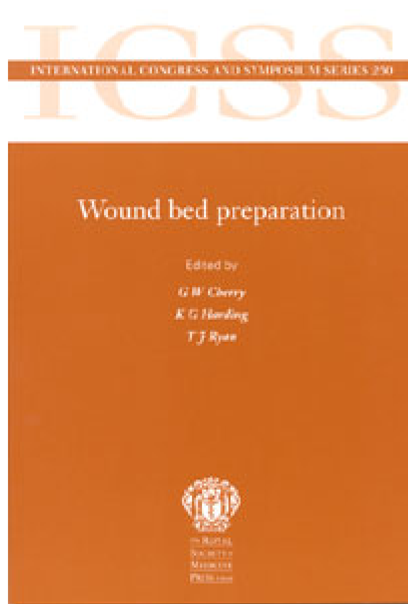

Wound bed preparation

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EUROPEAN TISSUE REPAIR SOCIETY

ETRS OPEN FOCUS MEETING

DEVELOPMENT OF NEW ANTISEPTIC FOR PREPARING WOUND BEDS

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Sterilox TX is produced by electrolysis of a saturated solution of brine. Its main constituent is hypochlorous acid (HOCL) with a 1000 m.v. redox charge, which has extremely rapid biocidal activity against all human pathogenic bacteria, fungi and viruses and also bacterial spores. The D curve shows that 1 $\log_{10}$ of bacterial spores are killed in 11.3 seconds. It is non-toxic to the rabbit eye, non-allergenic in the guinea-pig and not mutagenic (Ames test).

In order to determine whether these properties could be applicable to its use on human skin a series of studies were undertaken by Dr Margaret Hughes and Dr He of the Department of Dermatology at the Churchill Hospital, Oxford to determine its toxicity to skin keratinocytes and fibroblasts. These were grown in monolayer cultures on FCS/DMEB medium. Sterilox at Ph 6.2 resulted in some cell damage or inhibition of proliferation of human fibroblasts up to a dilution of 1:20. With Sterilox at Ph 5.4 there was no inhibition of growth at a dilution of 1:7 and stimulation of fibroblast and keratinocyte proliferation at dilution of ≥1:20.

In view of these findings the ability of Sterilox (Ph 5.4) was studied in respect of its acceptability to patients with chronic lower leg ulcers in terms of pain, discomfort or any other symptoms which might arise from twenty minutes exposure in a Hydrotherapy foot bath. Secondly, quantitative bacterial cultures were carried out to determine its effectiveness in reducing the bacterial load on the ulcer bed.

In all the six patients studied there were no adverse reports from the patients on the comfort of three twenty-minute exposures to Sterilox on each of two days, four days apart. On final assessment after seven days they remained satisfied with the acceptability of this treatment regime and there were no adverse clinical findings.

The bacterial activity showed an impressive reduction of the bacterial count. On the less chronic wounds complete eradication of bacterial load on the wound bed was achieved which was followed by appreciable improvement of wound healing. In the other patients the bacterial load was appreciably reduced by at least 4 x $1og_{10}$ and there was substantial growth of granulation tissue and considerable reduction in the purulent discharge.

These results will be discussed to determine whether this frequency of treatment or a more intensive and prolonged regime of Sterilox treatment could be used to enhance healing and whether it has a role in wound preparation for artificial skin grafting.