

COMPARISON OF THE BINDING CAPACITY OF COLLAGEN FROM DIFFERENT ORIGIN FOR IL-1BETA AND TNF-ALPHA

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Introduction: Chronic wounds contain elevated levels of inflammatory cytokines like IL-1 β and TNF- α . The overproduction leads to severe tissue damage and impairs wound-healing. Hence, the reduction of these mediators is a suitable way to promote normal healing. Collagen is known to be able to bind significant amounts of cytokines. A variety of wound dressings containing collagen of different type and origin are used. Within the present study we investigated the influence of the collagen origin (bovine*, porcine** and equine***) on the binding capacity for IL-1 β and TNF- α .

Materials & Methods: Wound dressings consisting of bovine*, porcine** and equine*** collagen have been used. Samples were cut into equal pieces, taken in 1 mL of IL-1 β or TNF- α solution (100 pg/ml), and incubated up to 24h at 37°C. Concentrations of unbound cytokines in the supernatants were determined by specific ELISAs (Mabtech AB).

Results: Already after 1h a highly significant decrease of the cytokine concentration was observed. Bovine* collagen performed best on IL-1 β and TNF- α binding. Equine*** and porcine** collagen showed a comparable influence on the cytokine reduction.

Conclusions: Collagen possesses a high binding capacity for different inflammatory cytokines in vitro. Therefore, collagen containing dressings should be able to improve the healing outcome of chronic wounds by decreasing these excessive mediator concentrations. Nonetheless, the choice of the collagen origin does influence the wound dressing performance.

* Suprasorb® C / Lohmann & Rauscher; **Nobakoll® / Noba; ***Kollagen resorb® / Resorba Clinicare