N-carboxybutyl chitosan and fibrin glue in cutaneous repair processes.

Authors: Muzzarelli R.A.A., Toschi E., Ferioli G., Giardino R., Fini M., Rocca M., Biagini G.

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Abstract:

N-carboxybutyl chitosan and fibrin glue were studied in wound healing. Open wounds were performed on the back of 12 New Zealand rabbits by removing cutaneous and subcutaneous tissue down to superficial muscle's fascia. The rabbits were divided in two groups: the first one was treated weekly with N-carboxybutyl chitosan and the second one with fibrin glue. No significant differences in healing time and no suppurative complications were observed. On the 15th day, the fibrin glue group histology showed initial healing with a multilayered epithelial tissue more evident than in the other group. The vascular structures were present in both groups but the histoarchitectural order of the stromal matrix was better in the N-carboxybutyl chitosan group. On the 30th day, complete reepithelialization was observed for the N-carboxybutyl chitosan group with all the epithelial cellular layers represented. Underlying connective tissue was mature but looser than for the fibrin glue group. Results show that with regard to biological functions, both fibrin glue and N-carboxybutyl chitosan provided positive results in tissue healing processes. Furthermore, N-carboxybutyl chitosan produced a more regular histoarchitectural restoration, with very limited inflammatory processes. N-carboxybutyl chitosan presents interesting features that can open new perspectives in tissue reconstruction.