Effect of the combination of fibrin glue and growth hormone on incomplete intestinal anastomoses in a rat model of intra-abdominal sepsis.

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Abstract:

Background. The presence of established intra-abdominal sepsis has been considered a contraindication to primary anastomoses. Our hypothesis was that fibrin glue (FG), growth hormone (rhGH), and combination of them synergistically improve intestinal primary anastomotic healing in a rat model of intestinal fistulae with peritonitis. Materials and methods. Male Wistar rats, induced intestinal fistulae with peritonitis after 24 h, were performed an enterectomy and intestinal anastomoses. Group A, rats (n = 60) had a complete anastomoses (end-to-end single layer anastomoses using 12 inverted interrupted 6-0 sutures) without peritonitis, group B, rats (n = 60) had a complete anastomoses after 24 h of peritonitis, group C rats had an incomplete anastomoses (four inverted interrupted sutures), groups D, E, F rats (n = 60) received FG, rhGH, or both of them, respectively. rhGH was given daily for 5 days. Anastomoses indicated the anastomotic bursting pressure (ABP), tensile strength, and hydroxyproline content, were determined. Results. On POD 1, ABP of group C and group D was significantly lower than that of other groups ($P < 0.01$); On POD 3, ABP could not be determined because of intestinal dehiscence in groups C and E, ABP was significantly higher in groups D and F than that of groups A and B ($P < 0.01$); the ABP increased after 5 days of operation in groups A, B, and F. At the same time, that of group D decreased ($P < 0.01$). On POD 5, the tensile strength was significantly higher in groups A, D, and F than that in groups C, and E. On POD 5, hydroxyproline content was higher in groups D and F compared to that in group C ($P < 0.05$). Conclusions. These data suggested that FG improve intestinal primary

anastomotic healing within post-operative 5 days in a rat model of intestinal fistulae with peritonitis. RhGH alone fails to improve intestinal anastomotic healing, and the combination of FG and rhGH have no synergistic effect to improves intestinal anastomotic healing.