Determination of fibrin glue with antibiotics on collagen production in colon anastomosis. [Croatian]

Authors: Stanojkovic Z., Stanojevic G., Stojanovic M., Milic D., Zivic S.

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Abstract:

Background/Aim. Fibrin glue is used as a matrix for local application of antibiotics. The aim of this study was to determine whether application of fibrin glue in combination with antibiotics can strengthen collagen production, prevent dehiscence of colon anastomoses due to infection, and reduce frequency of mortality and morbidity comparing to the control group and the group with fibrin glue application. Methods. The adult male Wistar rats divided into three groups were used in the experiment. The group 1 was the control one (after partial colon resection, colonic anastomoses performed were not treated), while to the group 2 and the group 3 were applied fibrin glue and fibrin glue with antibiotics (clindamycin and ceftriaxon) on the site of anastomoses, respectively. Quality of colonic anastomoses were estimated by means of determination of collagen (L-hydroxyproline) amount in the collon wall with anastomoses and histological analysis of this colon segment using light and electronic microscope on the days 5, 7 and 13 postoperatively. Results. The highest morbidity rate was registered in the group 1 (30%), then in the group 2 (13.3%) and the lowest one in the group 3 (3.33%; $p < 0,05$ vs group 1). Mortality rate was significantly higher in the group 1 than in the group 3 (20% and 0%, respectively; $p < 0,05$). In the postoperative course, the highest concentrations of collagen in the colon wall on the site of anastomoses, which was confirmed by both light and electronic microscopy, were found in the group 3. Conclusion. The application of fibrin glue with antibiotics on colon anastomoses reduces the number of dehiscence, provides good mechanical protection and shorten the time of anastomoses healing.