

عنوان مقاله:

Effect of gold nanoparticles on postoperative peritoneal adhesions in rats

محل انتشار:

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تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Objective(s): Abdominal adhesions are one of the most important problems, occurring after intra-abdominal surgery in more than 90% of cases. This condition is the leading cause of bowel obstruction, infertility, and abdominal/pelvic pain. Gold nanoparticles (GNPs) have been shown to be non-toxic and exhibit anti-inflammatory, anti-angiogenic and antioxidant activities. The purpose of this study was to determine the effect of intraperitoneal lavage with GNP solutions on the development of postoperative peritoneal adhesion (PPA). **Materials and Methods:** In the current experimental study, thirty-five male Wistar rats were randomly assigned to seven groups of five rats. After a standardized peritoneal injury, GNP solutions in different concentrations (1, 2.5, 5, 10, 50 and 100 ng/ml) were locally administered through nebulization; normal saline (NS) was administered to the control group. Two weeks later, the rats were sacrificed and cecum and peritoneal samples were harvested for histopathological assessment. Blood samples were obtained to determine serum concentrations of inflammatory biomarkers including tumor necrosis factor alpha (TNF- α), interleukin-1 beta (IL-1 β) and vascular endothelial growth factor (VEGF). **Results:** The rats treated with GNPs had significantly lower microscopic and macroscopic peritoneal adhesion scores, compared to the control group ($P < 0.05$). Score 5 of macroscopic adhesions was reported in all the rats of the control group, unlike the GNP groups. Furthermore, microscopic adhesions were reported with all rats in the control group, unlike the GNP groups (reported in 0 out of 5 rats in all GNP groups). In addition, serum levels of IL-1 β , TNF- α and VEGF underwent no significant changes. **Conclusion:** Compared to the control group, GNPs decreased the severity of peritoneal adhesions, although they did not alter TNF- α , IL-1 β or VEGF serum levels.

کلمات کلیدی:

Gold Nanoparticles, Nebulization, Postoperative peritoneal adhesion, Rat

لینک ثابت مقاله در پایگاه سیویلیکا:

