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Efficacy of Hyperthermic Intraperitoneal Chemoperfusion (HIPEC) with new chemotherapeutic drug dioxadet in rat ovarian cancer model

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For the first time, comparative study of open and closed techniques of hyperthermic intra-peritoneal chemoperfusion (HIPEC) in terms of safety and efficacy was performed in rat model of ascitic ovarian cancer transplanted intraperitoneally. Original device and implantation technique of the device into peritoneal cavity were developed and used in the study. All animals after tumor implantation were randomized into 4 groups: 1–control, intraperitoneal administration of 0.5 ml of saline (n=19); 2–closed HIPEC with cisplatin, 20 mg/kg (n=15); 3–open HIPEC with cisplatin, 16 mg/kg (n=16); 4–open HIPEC with mitomycin C (n=10). While working out the original open technique of HIPEC we established that it requires dose reduction for cisplatin from 20 to 16 mg/kg compared to closed technique of HIPEC. We didn't find significant differences between groups 1, 2 and 3 in terms of number of postoperative complications. According to the results of analysis of body weight changes in postoperative period open HIPEC was worse tolerated compared to closed HIPEC. Median survival of rats in group 3 was 53 days which was higher compared to median survival in group 2–25 days (p=0.044). Open HIPEC with mitomycin C turned out to be less effective than open HIPEC with cisplatin but equally effective compared to closed HIPEC with cisplatin. However more rats should be included in group 4 to make a conclusion. Open HIPEC with cisplatin in accordance with suggested technique seem to be more promising than closed HIPEC in terms of improving outcomes of patients with peritoneal carcinomatosis.

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