the reinforcement of clinical remission and increased the life expectancy of patients with brain tumors after surgery.

http://dx.doi.org/10.1016/j.ejcsup.2015.08.068

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An oxidative stress during laproscopic surgery is a possible triggering factor of cancer cell metastasis

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Objective: To study the impact of oxidative stress acute hypoxia and reperfusion on HeLa cervical cancer cell attachment, survival and invasion capacities.

Summary background data: Many hypotheses have been proposed to explain the mechanism of port-site metastases (PSM). We presumed that CO2 exposure results in hypoxia and reperfusion with subsequent oxidative stress of cancer cells being a triggering mechanism of PSM.

Methods: Two CO2-pneumoperitoneum conditions were created: the hypoxic standard model (HSM) and oxidative stress model (OSM) upon CO2 insufflation and reperfusion by means of in vitro cell culture tools and non-exposed cells were served as intact control. HeLa cervical cancer cells were exposed under these CO2 insufflation conditions. Subsequently, HeLa cell attachment, viability and proliferation capacities were evaluated in duplicate samples as series I and II by the MTT and SRB assays and invasion by the Matrigel invasion assay and repeated in triplicate experiments. The impact of different CO2-pneumoperitoneum conditions on cancer cell attachment was evaluated immediately after exposure, whereas invasion capacity after 48 h of incubation and survival and proliferation every 24 h for 72 h.

Results: Both CO2 insufflation models significantly affected HeLa cell attachment activity ($p < 0.001$) in comparison with that of non-exposed cells. CO2 insufflation by HSM resulted in significantly pronounced weakening of HeLa cell attachment as compared to exposure of these cells to insufflation by OSM ($p < 0.001$). Both pneumoperitoneum regimes significantly weakened HeLa cell invasion capacity in comparison with those of controls ($p < 0.001$ and $p < 0.05$), whereas HSM profoundly decreased HeLa cell invasion capacity in comparison with that of OSM ($p < 0.05$).

Conclusion: An in vitro model of oxidative stress during CO2-pneumoperitoneum increased HeLa cancer cell invasion capacity in comparison with standard CO2-pneumoperitoneum condition with continuous CO2 insufflation. Oxidative stress followed by acute hypoxia and reperfusions during deflations can increase cancer cell attachment and survival capacity, and may trigger cancer cell invasion and metastasis. These data suggest that a regime of laparoscopic procedures may affect attachment and invasion of cancer cells and hence can explain the occurrence of port-site cancer metastasis.

http://dx.doi.org/10.1016/j.ejcsup.2015.08.069

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Components of the metabolic syndrome in patients with colorectal cancer: case-control study

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Obesity, associated with metabolic syndrome, is considered a significant risk factor for colorectal cancer (CRC).

Purpose: To compare the levels of metabolic syndrome (MS) components in persons with CRC and control in the frame of nested "case-control" design.

Materials and Methods: The study was carried out on the basis of a comparison of databases from epidemiological study The HAPIEE project and CRC register. The patients examined in the HAPIEE project, who had developed CRC during 10-year follow-up period according to the register of cancer ($n = 92$, men-48, women-44, mean age 60.7 + 6.9 years) were included in analysis. The control group, matched by sex and age, was also formed from the HAPIEE database ($n = 184$, men-96, women-88, mean age 60.7 + 6.8 years). We used MS criteria's according to NCEP ATP – III (2001). The data was processed using statistical program SPSS 13.0.

Results: Body mass index (BMI) and waist circumference (WC) had no significant differences in the studied groups, the average BMI value in CRC group was 28.6 + 5.3 kg/m^2 vs 28.4 + 5.6 kg/m^2 in control ($p = 0.70$) and WC value in CRC group was 94.1 + 11.7 cm vs 94.1 + 13.6 cm in control ($p = 0.90$). The percentage of patients with abdominal obesity was 41.3% in patients with CRC vs 42.9% in the control group ($p = 0.70$).

The average value of total cholesterol was equally high in both groups (246.8 + 52.5 mg/dL in patients with CRC and 239.8 + 47.0 mg/dL in the control group), with large individual variation but no significant difference ($p = 0.27$). The average level of HDL cholesterol in CRC group was within normal limits and also did not differ from control ($p = 0.60$). The average level of TG in CRC patients was slightly lower than in the control group: 127.2 + 58.5 mg/dl vs 144.6 + 80.8 mg/dL ($p = 0.07$). The average level of glucose did not differ in patients with CRC and in control: 5.9 + 1,2 mmol/l vs 6.1 + 2.1 mmol/L ($p = 0.40$). In patients with CRC systolic blood pressure was significantly lower than in control group: 142.1 + 21.3 mmHg vs 150.4 + 23.7 mmHg ($p = 0.005$). The level of diastolic blood pressure was slightly lower than in the control group compared to CRC (88.9 + 11.2 mmHg vs91.9 + 13.4 mmHg, $p = 0.06$). The proportions of patients with low HDL cholesterol, hypertriglyceridemia and hyperglycemia