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Influence of fetal placenta extract on growth of experimental solid tumors

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Tumor growth and metastasis are dependent on the degree of neovascularization in the tumor bed. Vascular Endothelial Growth Factor (VEGF) is a key angiogenic factor, frequently utilized by tumors to switch on blood vessel growth. Eriksson A et al (2002) showed that Placenta Growth Factor (PlGF-1) antagonizes VEGF-induced angiogenesis when both factors are co-expressed in murine fibrosarcoma cells. During the organogenesis, apoptosis of the primary cells of the embryo is extremely intense. It is possible that placental factors regulate this apoptosis. The purpose of study is to analyze influence of fetal placenta extracts (FPEs) on solid experimental tumors growth and caspases activity in tumor tissues. Experiments accomplished in 330 rats. Subfascial transplantation of tumor cells were performed. FPEs injected on the 7th day after tumor transplantation. After FPEs administration the growth curve of sarcoma 45 plotted on the line of negative polynominal relativity with time; growth of carcinoma had negative linear relativity from the time that evidences about the rapid regression of the tumor mass. Dynamic of Lymphosarcoma growth also characterized by negative polynomial time-related dependence. After administration of FPEs in carcinoma tissue the level of conjugated diene raised by 40%, malondialdehyde level increased twice. Simultaneously, sharp decrease in superoxide dismutase and γ-glutamyl transpeptidase activity observed; in carcinoma tissue activity of caspase-3 exceeded control by 47%, activity of effector caspase-8 by 2.4 times. FPEs induced apoptosis in the tissues of experimental tumors and block angiogenesis due to rapid necro-apoptosis and regression of tumor mass had occurred.

Biography

Oleksandr Kukharchuk, MD is the Research Director of ReeLabs Pvt. Ltd. He has guided research and clinical study in HM of Ukraine: in experiments and clinical study, to determine effectiveness of transplantation of stem cells, tissues of fetal and extra-fetal material and tissue therapy by Filatov in immune and onco-pathological process, pancreo- and colonogenic peritonitis, ageing and dysfunction of reproductive system. He is the author of the book "*Stem cells: Experiment, Theory, Clinic. Embryonic, mesenchymal, neural, hematopoietic stem cells*". He was the Director of the Coordination Centre for Transplantation of Organs, Tissues and Cells of the Ukraine Health Ministry.

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