disease revealed multiple involvements in the bone and lungs. Treatment with Vincristine, doxorubicin, cyclophosphamide, and dexamethasone was initiated, resulting in a significant regression of the masses and an improvement in the cytopenia picture. **Conclusion:** The presence of RMS in the bone marrow can complicate both the diagnosis and treatment of the disease. It may require additional diagnostic procedures, such as bone marrow biopsy, to confirm the presence of RMS cells. Treatment may also need to be more aggressive, approaches. Bone marrow involvement in RMS is considered a more advanced stage of the disease and may be associated with a more challenging prognosis. Early detection and tailored treatment are crucial for managing RMS with bone marrow infiltration.

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OP 15

NEW MOLECULAR TARGETS IN CANCER CELL BIOENERGETIC PATHWAYS

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Research Supervisor: L.Y. Grivtsova, PhD in medical science, PhD in biology science, Head of Laboratory Medicine Department, Head of Clinical Immunology Laboratory of A.F. Tsyba MRSC, a branch of the Federal State Budgetary Institution "NMRC of Radiology" of the Ministry of Health of the Russian Federation Over the last ten years, the ideas of molecular oncology about the energy metabolism of malignant cells have changed dramatically, and new molecular mechanisms in the cascade pathways of cancer bioenergetics are being searched for. Numerous data show that the emergence and development of tumors are closely related to the metabolism of iron ions (Fe). Inorganic substrates, namely iron ions involved in the metabolic processes of the tumor cell, have received limited attention in the world literature to date. Our research group has put forward and is developing the concept of «Energy metaplasia of cancer cells», i.e. acquisition of an additional autotrophic way of energy production (respiratory reactions involving iron ions) in the process of oncogenesis. Proof of the hypothesis opens prospects for explaining some issues of oncogenesis and a new approach to the treatment of cancer. The aim of the study: to investigate and obtain evidence for the existence of respiratory (chemosynthetic) reactions involving iron ions as a way to obtain energy in cancer cells. The studies were conducted on the basis of the «Center of Cell Technologies», Samara city, Russia, under the guidance of specialists from A.F. Tsyba MRSC, Obninsk city, Russia. All experiments were conducted in vitro using HeLa cell line (cervical carcinoma) and human mesenchymal stromal cell line (MSC) culture as a control. The proof-of-concept study was carried out in 3 stages. The 1st stage was analytical review, the 2nd stage - study of energy metabolism by extracellular flux analysis on the SeaHorseXFp apparatus (USA), the 3rd stage - bioinformatic study on search in the human genome for homolog genes responsible for chemosynthetic reactions using blastp and exonerate programs. As a result of the analytical review of works on the evolution of the way of energy production by plant and animal cells, a possible chemosynthetic reaction in cancer cells - oxidation of iron ions (Fe^{+2} - Fe^{+3}+E) was revealed. As a result of 50 performed protocols on SeaHorseXFp cell metabolism analyzer we found suppression of two classical pathways of energy production - oxidative phosphorylation (by 54,2%) and glycolysis (by 85,4%) in malignant HeLa culture in contrast to normal index in MSC cell culture. As a result of bioinformatic study, 6 proteins and 11 domains related to iron metabolism were found in the human genome, which are highly similar in sequence to the genes responsible for chemosynthetic reactions involving iron ions in iron bacteria. Thus, respiratory chemosynthetic reactions involving iron ions are possible in malignant cells, which allows the cancer cell to change its energy phenotype and acquire an additional autotrophic way of energy production, allowing it to acquire the properties of uncontrolled growth and metastatic spread. This molecular cascade requires additional study and is of interest as a target for the development of targeted antitumor drugs.

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Pediatric Hematology Abstract Categories Coagulation and Fibrinolysis Disorders
OP 16

THE COEXİSTENCE OF NOVEL MUTATİONS OF FX, DİMETHYLGLYCİNE DEHYDROGENASE GENES WİTH FAMİLİAL EPİSODİC PAİN SYNDROME: A CASE REPORT

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Objective: Congenital Factor X (FX) deficiency is an autosomal recessive disorder with variable clinical severity associated with heterozygosis or homozygosis inheritance. Genetic mutations are located on the glutamic acid domain on exon two and the catalytic site of FX on exons 7, 8. Missense mutations of specific patients or families are reported. Severe forms of the disease result from homozygosis or compound heterozygosis genetic mutations. In this case report, we aim to write a rare cause of epistaxis and novel mutations of FX and DMDGH (**Dimethylglycine Dehydrogenase)** deficiencies, and he and his family are the second with TRAP1-related FEPS1 (familial episodic pain syndrome) in the World. **Case report:** A 6-year-old boy, born in Turkey, with no known