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Mitochondrial complex as an essential driver of tumor growth and metastasis, potentially common to all breast cancer types

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Introduction: Despite advances in clinical therapy, metastasis is still the leading cause of death in breast cancer patients. Tumor cells also generate high levels of reduced forms of NAD+, NADH, and NADPH as important cofactors and redox components.

Aim: Our present study is on the markers potentially common to all breast cancer types metabolism as an essential driver of tumor growth and metastasis.

Materials & Methods: 210 patients breast cancer patients were examined. Among them 147 patients were with metastatic breast cancer (MBC), 63 patients were with non metastatic breast cancer (NMBC). Native fluorescence emission of tissue can be from tryptophan (340 nm), collagen (380 nm), elastin (410 nm), NADH (460 nm) and flavins (525 nm).

Results & Discussion: Thus, total protein was increased in 14.8% and 9.3%, in patients NMBC and MBC. Research has found disorders of protein and fat metabolism in patients with breast cancer at which it should be considered that catabolic processes predominate over anabolic. Serum phosphorescence intensity in patients at activation with monochromatic light of 290 nm wavelength rised up by 1.2 and 1.93 times accordingly in NMBC and metastatic breast cancer in comparison with a group of conditionally healthy people. At activation with wavelength of 400 nm serum phosphorescence in patients increased by 3.5 times, at 380 nm by 3.1 times in comparison with a group of conditionally healthy people.

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