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THE INFLUENCE OF PLEURAL MACROPHAGES ON PROLIFERATIVE ACTIVITY AND APOPTOSIS REGULATING PROTEINS OF MALIGNANT CELLS

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Malignant tumors contain numerous macrophages as a major component of the leukocytic infiltrate. Our objective was to study soluble factors produced by pleural macrophages. We sampled pleural effusions from patients with cancer, and used human tumor cells lines as targets. Pleural macrophages were cultured, and supernatants were used as a conditioned medium (CM) for cultures of human cell lines A549, MCF7, MDA-MB231, HT29, HCT116, SW620, Jurkat and HL-60. We investigated proliferative activity and expression of apoptosis regulating proteins Fas, Bcl-2, caspase 3, and survivin of malignant cells cultured in the CM. The influence of CM on proliferative activity of malignant cells was assessed by flow cytometric analysis of S phase fraction of the cell cycle. CM had appreciable effect on proliferative activity of malignant cells. An increase of proliferative activity was observed in all assessed cell lines after co-culture with the CM *vs*. control medium. As measured by the percent of positive cells, level of Fas receptor on malignant cells membranes was lower in treated cells than in untreated control cells in all cell lines. Intracellular expression of Bcl-2 protein was significantly increased in A549, HCT116 and MDA-MB 231. Elevated level of intracellular expression of survivin was observed in A549, HT29 and HCT116. Decrease of expression of caspase 3 protein was observed in HT29, SW620 and MCF7. Our findings raise the possibility that macrophages from malignant pleural effusions can act as a stimulator of growth of malignant cells.