mimicking WT and CIP resistant J774 cells, by fluorescence polarization spectroscopy. In this respect, we observed a decrease in the melting temperature in vesicles mimicking the membrane composition of CIP resistant cells, indicating that changes in the fluidity of these membranes may be due to the decrease of SM. Studies are currently performed to investigate potential changes in other components of rafts like glucosylceramides. These data might have important relevance to relate the interaction of fluoroquinolones with lipids and change in the processes involved in cellular accumulation of fluoroquinolones.

1812-Pos Board B656

The Effect of Mepivacaine·HCl on the Physical Properties of Liposomes of Total Lipid and Phospholipids Extracted from Neuronal Membranes

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The aim of this study was to provide the basis to further examine the mode of action of local anesthetic. Fluorescent probe techniques were used to evaluate the effect of mepivacaine·HCl on the physical properties (transbilayer asymmetric lateral and rotational mobilities, membrane thickness) of liposomes of total lipid (SPMVTL) and phospholipids (SPMVPL) extracted synaptosomal plasma membrane vesicles (SPMV) isolated from bovine cerebral cortex. An experimental procedure was used based on selective quenching of 1,3-di(1-pyrenyl)propane (Py-3-Py) and 1,6-diphenyl-1,3,5-hexatriene (DPH) by trinitrophenyl groups. Membrane thickness was measured by using energy transfer between the surface fluorescent probe 1-anilinonaphthalene-8-sulfonic acid (ANS) and the hydrophobic fluorescent probe Py-3-Py. Mepivacaine·HCl increased the bulk lateral and rotational mobilities, and had a greater fluidizing effect on the inner monolayer than outer monolayer of liposome. The thickness of SPMVTL, SPMVPL lipid bilayer have been decreased by mepivacaine·HCl, which means that the membranes have been expanded. It is judged that the region for the decreased thickness of SPMVTL, SPMVPL lipid bilayer by mepivacaine·HCl is due to the lateral and rotational mobility of the SPMVTL, SPMVPL lipid bilayer was found to be increased by mepivacaine·HCl. The magnitude of increasing effect of mepivacaine·HCl on lateral and rotational mobilities of both SPMVTL, SPMVPL lipid bilayer was significantly far smaller than the magnitude of those of SPMV lipid bilayer. The sensitivities to the increasing effect of the lateral and rotational mobilities of the liposomal lipid bilayer by the local anesthetic differed depending on the native and model membranes in the descending order of SPMV, SPMVPL and SPMVTL. These effects are not only due to the influence of the local anesthetic on lipids, but they are magnified by the interaction between lipids, proteins and water.

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Analysis of Lipid Exchange in Patients with Urinogenital Fistula

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Affection of urinary and sexual systems in women occurs with cell membranes trauma. Therefore origin and shaping fistula connected directly or indirectly with lipid exchange breach in patient's organism. Hence study lipid exchange in patients with the fistula of urinogenital systems in women is actual.

Our data showed that the phospholipids level was significantly lower (7.82%) in the experimental group (patients) than that of control group. The level of triglycerides in the experimental group was about 3 fold higher than in the control (healthy) group. Importantly, the level of cholesterol in the patients was substantially higher (62.0%) than that of control group.

From final products of parameters of peroxidation process malondialdehyde level in blood 13.2% higher than in control, diene conjugates in patients nearly 24.8% higher norm. Average molecular mass reliably higher than in checking group, but antioxidizing activity level decreased 10 % from the norm.

Change of lipids group composition and their sex affects to ferments activity. For example, in patients catalase activity in blood serum (7.28 ± 0.68 mmol/(min*ml)) almost by 2.58 % higher than in healthy people (5.80 ± 0.63), but superoxidismutase activity by 40 % higher than the norm.

Individual composition of fatty acids in examined patients' blood was studied and established that content of palmitic C(16:0), palmitoleic C(18:0) and arachidone C(20:4) in contrast with checking, by 11.4%, 34.5% and 65.4% increased accordingly. Contents of other acids were realistically reduced. From findings it is possible to establish that content of phospholipids with the parameter of lipids peroxidation and ferments activity parameters have the following correlation: with malondialdehyde (0,320), diene conjugate (0,266), catalase (0,216) and superoxidismutase (0,198) have a weak correlation, but with antioxidizing activity (0,480) and average molecular mass (0,4) average correlation. Phospholipid content with C(18:3) has a high correlation (0,721).

1814-Pos Board B658

Cell Membrane Electrical And Order Properties Under Microwaves Irradiation

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The degree of packing and mobility of phospholipidic molecules within a biological membrane are crucial for the latter to accomplish its physiological functions (e.g. transport across membrane, signaling processes etc). Consequently, any physical and/or chemical factor which affects the membrane order, may affect also its function.

We studied the effect of 2.45 GHz microwaves irradiation on both biological and model membranes (dimiristoyl phosphatidyl choline liposomes), monitoring the following parameters:

- membrane fluidity, by fluorescence depolarization of TMA-DPH,
- membrane generalized polarization, by modifications of emission spectra of Laurdan,
- membrane potential, by fluorescence quenching of $DiSC_3(5)$.

The irradiation was performed directly in the spectrofluorometer, with a specially designed antenna and the temperature was continuously monitored using an optical fiber thermometer. Membrane fluidity, generalized polarization and potential were measured continuously during the irradiation.

In parallel experiments the same thermal evolution of the system as in the case of microwave irradiation was simulated by means of a computer controlled Peltier thermostat.

The dependency of the monitored parameters on the temperature in both cases (MW irradiation and ''thermal'' heating) was analyzed.

In the case of liposomes we observed a rising of the transition temperature by a few degrees centigrade, depending on the applied microwaves power.

The results are interpreted in terms of membrane destabilization by water penetration in the lipidic bilayer above the critical temperature, which seems to be affected by the presence of the electromagnetic field. The effects are very clear in the case of model membrane, but less evident and much more complex in the case of living cells.

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Amifostine, a Radioprotectant Agent, Protects Rat Hepatic Microsomal Membranes Against Ionizing Radiation Induced Damage

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In the present study, the protective effect of amifostine (WR-2721), which is the only approved radioprotective agent by the Food and Drug Administration (FDA), was investigated against the deleterious effects of ionizing radiation on rat liver microsomal membranes at molecular level. To achieve this, Sprague-Dawley rats, which were administered amifostine or not, were whole-body irradiated using Cobalt-60 irradiator at a single dose of 800 cGy, decapitated after 24 h and the microsomal membranes isolated from the livers of these rats were analyzed using FTIR spectroscopy. The results revealed that ionizing radiation caused a significant increase in the concentration of lipids whereas amifostine treatment restored the lipid content of microsomal membranes to control values. In addition, the significant increase in lipid order and a significant decrease in membrane dynamics resulting from ionizing radiation were prevented by amifostine. While ionizing radiation caused a significant decrease in the lipid to protein ratio, amifostine injection before radiation, maintained this ratio as in the control group. Furthermore, ionizing radiation-induced variations in protein secondary structure were restored by amifostine. In conclusion, the data obtained in this study indicate that amifostine administration to the rats prior to whole body irradiation protects liver microsomal membranes against the radiation induced damages. Supported by TUBITAK, (SBAG-2939) and by the METU (BAP-2006-07-02-0001).