

## «Serum lipids and coenzyme Q10 in patients with various types of cancer and correlation with chemotherapeutic agents»

**Introduction** : Lipids are known to play a crucial role in tumor development and progression. Proliferating cancer cells require a constant supply of lipids for membrane biogenesis and protein modifications. Also, the cancer cells that are not rapidly proliferating require increased amounts of lipids for enhanced signaling and resistance against apoptosis. Lipoproteins are the distributors of both endogenous as well as exogenous lipids across the tissues. It is therefore plausible that lipoproteins play a fundamental role in cancer progression via supplying lipids to malignant cells and tumors. Adipocytokines function to regulate numerous physiological processes that play an overall role in appetite and energy balance such as, lipid metabolism, glucose homeostasis, insulin sensitivity, angiogenesis, blood pressure and inflammatory processes. In obesity, however, adipocyte hypertrophy and excessive adipose tissue accumulation, dysregulate the sensitive microenvironment within adipose depots, which consequently alters their physiological processes. Coenzyme Q10 is considered as a potential anti-cancer agent due to its antioxidant properties, protecting cells from oxidative damage.

**Purpose** : Comparison of lipid profile, lipokines (resistin and bisphatin) and coenzyme Q10 before and after chemotherapy in patients with breast, colon, ovarian and prostate cancer. The lipid profile will include, total cholesterol (CHOL), triglycerides (TG), HDL cholesterol and LDL cholesterol. An attempt will also be made to develop an HPLC method for the identification of anticancer agents, in order to correlate them with changes in the levels of the above factors.

**Materials and methods** : Collection of blood samples (to obtain serum) and urine, from n = 40 patients for each type of cancer. Patients participating in the study will be asked to answer diet preference questionnaires.

The following will be identified:

- The concentrations of the pharmaceutical agents using HPLC with UV detector
- Lipid concentrations by common biochemical methods
- Bisphatin, resistin and coenzyme Q10 by ELISA

The measurement of the various factors will be done in three phases during the progression of the disease a) before b) during and c) after the end of the treatment.

**Expected results/conclusions** : Based on the results of this study, it will be determined if there is a change in the levels of laboratory parameters being tested. An attempt will also be made to correlate the possible changes with the chemotherapeutic agents. This will draw conclusions about the effect of the drugs used as well as the expected values of the laboratory parameters in similar situations.