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Aims and Scope

Clinica Chimica Acta publishes original Research Communications in the field of clinical chemistry and laboratory medicine, defined as the diagnostic application of chemistry, biochemistry, immunochemistry, biochemical aspects of hematology, toxicology, and molecular biology to the study of human disease in body fluids and cells. The objective of the journal is to publish novel information leading to a better understanding of biological mechanisms of human diseases, their prevention, diagnosis, and patient management. Reports of an applied clinical character are also welcome. Papers concerned with normal metabolic processes or with constituents of normal cells or body fluids, such as reports of experimental or clinical studies in animals, are only considered when they are clearly and directly relevant to human disease. Evaluation of commercial products have a low priority for publication, unless they are novel or represent a technological breakthrough. Studies dealing with effects of drugs and natural products and studies dealing with the redox status in various diseases are not within the journal's scope.

Development and evaluation of novel analytical methodologies where applicable to diagnostic clinical chemistry and laboratory medicine, including point-of-care testing, and topics on laboratory management and informatics will also be considered.

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tumor progression, including growth, proliferation, angiogenesis, and survival of malignant cells. The aim of our study was to assess the usefulness of measurement of serum CXCL-8 levels in AC patients in relation to serum concentrations of classic tumor marker for this malignancy (carcinoembryonic antigen, CEA).

Methods

The study included 40 subjects (18 patients with AC and 22 healthy controls). The levels of CXCL-8 were measured in the sera of patients using immunoenzymatic assay (ELISA method), whereas chemiluminescent assay was used to assess the concentrations of CEA.

Results

The serum concentrations of CXCL-8 were found to be significantly higher in AC patients when compared to healthy volunteers ($p=0.003$). There was no statistically significant difference between serum CEA levels in AC patients and healthy controls ($p=0.073$). Moreover, diagnostic sensitivity and the area under the ROC curve (AUC) were higher for CXCL-8 in comparison to classic tumor marker (CXCL-8 – 83%, AUC = 0.8005; CEA – 50%, AUC = 0.7033).

Conclusions

Our present data suggest the potential role of CXCL8 in adenocarcinoma of esophageal.

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T073

Assessment of prognostic values of serum CEA and CA 19-9 concentration in patients with colorectal cancer

J. Tuteska[c], M. Arapceska[a], V. Stojkovski[b], J. Gligurovska[c]
[a]*Faculty of Biotechnical Sciences, "St. Kliment Ohridski" University, Bitola, Macedonia*
[b]*Faculty of Veterinary Medicine, "Ss. Cyril and Methodius" University, Skopje, Macedonia*
[c]*Medical Nursing College, "St. Kliment Ohridski" University, Bitola, Macedonia*

Background-aim

The control of chemotherapy is one of the most important problems in oncological practice. Markers of biological activity of the tumor are used for assessment of therapy effect. Colorectal cancer is one of the most common causes of cancer related death worldwide. Tumor markers for colorectal cancer can be found in the blood or in the tumor tissue itself. CEA and CA19-9 are the most common tumor markers for colorectal cancer that are currently utilized clinically. Aim of this study was the assessment of the prognostic value of tumor markers CEA and CA19-9 in patients with colorectal cancer.

Methods

In the study were included patients with colorectal cancer who underwent surgery(n=70;males=40 and females=30, on age from 32 to 77 years). Serum samples were taken from patients before surgery; before the start and three months after chemotherapy. The serum values of CEA and CA 19-9 were measured by enzyme linked fluorescent immunoassay using VIDAS analyzer.

Results

Obtained results indicated elevated values of CEA in 86% of male and 83% of female patients (14% male and 17% female had normal CEA values according referent) and elevated values of CA 19-9 in 65% of male and 58% of female patients (35% male and 42% female had normal CA 19-9 values) before surgery. The results have shown significant difference between preoperative and postoperative values of serum CEA and CA 19-9 ($p<0.001$).According results the concentration of CEA was higher (4,86%) in patients after chemotherapy than before its start, while concentration of CA 19-9 was higher (19.58%) in patients before start of chemotherapy. However statistical analysis of obtained results did not shows significant differences in values of CEA and CA 19-9 before start and three months after chemotherapy. 56% of patients had survival period less than two years.

Conclusions

Tumor markers play a crucial role in detecting disease and in assessment of response to therapy. Mainly, changes of serum levels of tumor markers correlate with therapy effect. The effect of treatment on tumor proliferation can be successfully estimated by decreasing tumor marker levels.

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T074

Antiproliferative effects of thymoquinone in MCF7 and HEPG2 cancer cells involve increased ceramide levels

M. Aslan, E. Afşar, S. Kaya
Akdeniz University Faculty of Medicine, Department of Medical Biochemistry, Antalya, Turkey

Background-aim

Previous studies have shown that thymoquinone (TQ), an active compound of black seed, has anticancer properties. However, the antiproliferative mechanisms of TQ on cancer cells is unclear. Our study aimed to investigate the impact of TQ on ceramide levels, neutral sphingomyelinase activity (N-SMase) and apoptotic pathways in MCF-7 breast cancer and HepG2 liver cancer cell lines.

Methods

Antiproliferative effect was exerted in cancer cells via TQ incubation at different doses and durations. Cell viability was measured by MTT assay. Levels of C16-C24 sphingomyelins (SM) and C16-C24 ceramides (CER) were determined in cell lysates by an optimized multiple reaction monitoring (MRM) method using ultra fast-liquid chromatography (UFLC) coupled with tandem mass spectrometry (MS/MS). Neutral sphingomyelinase enzyme activity was measured by a colorimetric assay, ceramide-1-phosphate (C1P) levels were determined by immunoassay, while caspase -3 and -12 activity in cell lysates were measured via a fluorometric method.

Results

Incubation with 100-200 μM TQ for 24 hours significantly decreased cell viability in cancer cells when compared to control. A significant increase was observed in N-SMase activity and cellular levels of C16-C24 CERs in cancer cells treated with 100-200 μM TQ

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