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ABSTRACT BOOK

IN VITRO SENSITIVITY TO RADIOTHERAPY OF CANCER STEM CELLS PREDICTS THE EFFICACY OF TREATMENT *IN VIVO*

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Radiotherapy represents a first-line treatment for many inoperable lung tumors. New technologies offer novel opportunities for the treatment of lung cancer with the administration of higher doses in smaller volumes. Since both therapeutic and toxic treatment effects are dose-dependent, the identification of a specific lower effective dose protocol which minimizes toxicity maintaining efficacy for each individual patient. Cancer stem cells sustain tumor growth, promote metastatic dissemination and may give rise to secondary resistance as a consequence of their intrinsic resistance. The identification of effective protocols targeting these cells may improve disease-free survival of treated patients. In this work we evaluated the existence of individual profiles of sensitivity to radiotherapy in patient-derived CSCs using *in vitro* and an *in vivo* model. Both CSC and CSC derived tumor bearing mice were treated with radiotherapy at different doses and dose rates. CSCs response to different radiation doses greatly varied among patients. In vitro radiation sensitivity of CSCs corresponded to the therapeutic outcome in the corresponding mouse tumor model. The dose administration did not affect the response. These findings suggest that *in* evaluation of CSC may support the clinical decision predicting the response in patients.

IMMUNO-ONCOLOGICAL TREATMENT OF NON-SMALL-CELL LUNG CANCER IN ADVANCED STAGE WITH NIVOLUMAB

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In recent years, significant scientific progress has been made in the therapy of non-small cell lung cancer (NSCLC), which has made possible a better knowledge of this pathology and above all the realization of new personalized therapies. The main therapeutic revolution in advanced NSCLC is immuno-oncology, a new therapeutic strategy that aims to awaken the immune system to fight cancer cells. Our work helped us evaluate the therapeutic efficacy of monotherapy with Nivolumab in the treatment of patients with advanced stage IIIB/IV non-small-cell lung cancer beyond the second line. We can conclude that in the treatment of non-small-cell lung cancer, the use of Nivolumab improves the prognosis and quality of life of the patients, without causing serious side effects compared to other treatments. We hope that in the future the combination of predictive biomarker research combined with the improvement of Immunoncology protocols will led to ever greater overall survival data.

DETECTION, ANALYSIS AND PROCESSING OF ACUTE ALCOHOL INTOXICATIONS COLLECTED AT EMERGENCY DEPARTMENT OF THE "GARIBALDI CENTRO" HOSPITAL IN CATANIA

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The study we conducted was highlighted the main clinical aspects of voluntary or accidental acute alcohol intoxication. These intoxication were identified over the five-year period between 2015 and 2019, and we evaluated its pharmacological management by statistical analysis of clinical cases detected at the Emergency Department of "Garibaldi Centro" Hospital in Catania. The extrapolated data showed that acute alcohol intoxications are the main reason of access to the Emergency Department (65%) to which drugs (17%), addicted substances (8%), and other substances (caustics, food, gases and vapours, detergents and soaps, benzene and pesticides, 10%). It has been shown that the most commonly used treatment in intervention therapy of acute alcohol intoxications is Metadoxil (methadoxine), a metabolic accelerator that prevents alcohol admixation by facilitating metabolism and increasing urinary elimination of ethanol and its toxic metabolite, acetaldehyde. The prevention study of clinical cases detected shows that the age group most exposed to acute alcohol toxicose is the age range 18-24 years with a greater prevalence of male sex. It is therefore clear that prevention and information campaigns need to be increased by means of different professional channels and professions such as pharmacist.