Review of Clinical Pharmacology and Pharmacokinetics

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GENERAL INFORMATIONS

REVIEW OF CLINICAL PHARMACOLOGY AND PHARMACOKINETICS

publishes Applied Pharmacology and Current Therapeutics Reviews, Review Articles on Drugs and Drug Therapy, Original Papers and Practical Therapeutics Articles.

The *scientific standard* of the papers, which are accepted for publication, is controlled by the Editorial Board or by other Experts in the various fields of Pharmacology and Pharmacokinetics.

Manuscripts: These should mention, on the first page, the *Title*, *Author(s)* and the *Name of the Institution* at which the work was done. The complete *address* of the author, including Postal area code number, should be given under the rubric *Send reprint requests to*. Papers should follow the general form: *Introduction, Materials and Methods, Results, Discussion* and *References*. Drugs must be referred to by their generic or chemical name, but may be identified by trade name in parenthesis or o footnote. All papers should be submitted in duplicate.

Summary: A summary in English (maximum length 200 words) must accompany all manuscripts.

Key words: A list of key words should be submitted.

References: These should be numbered in the paper and listed under *References* in order of their appearance in the text. The author(s) surname followed by the initials should be given first, then the complete title of the article, the name of the Journal or Magazine (abbreviated according to the Index Medicus), the volume number, page numbers and year of publication in parenthesis.

Papers should be submitted to the Editors-in-Chief: Prof. S.T. Plessas or Dr C.T. Plessas.

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INVITED SPEAKERS

ORAL AND POSTERS PRESENTATIONS

Letter from Guest Editor

The progress and contributions of 20th century pharmacology has been immense with over 20 pharmacologists to have received Nobel Prizes. This field of medical studies covers many areas; it is built upon and at the same time incorporates many disciplines such as biochemistry, biology physiology, pathology, anatomy, molecular biology, while the development of new analytical and experimental techniques and instruments has given a new boost in pharmacological research. Yet, although a remarkable progress has been made in developing new drugs and in understanding how they act, the challenges are endless. Integrating a depth of knowledge in many related scientific disciplines, pharmacologists offer a unique perspective to solving drug and chemical related problems which impinge on human health, with ultimate goal the treatment and prevention of major diseases.

The 5th Panhellenic Congress of Pharmacology focuses on four *hot* subjects: Regenerative Pharmacology, Herbal Medicines, Pharmacology of Abuse and Dependence, and Education in Pharmacology.

- *Regenerative Pharmacology* is one of the newest areas in Pharmacology, represents a groundbreaking field of research and has the potential to radically alter the treatment of diseases and disorders.

- *Herbal Medicines* have acquired an important percentage among the drug used; according to WHO 80% of people worldwide rely on herbal medicines for some aspect of their primary health care. This continuously increasing use of plant medicines imposes the need for establishing new regulations.

- *Pharmacology of Abuse and Dependence*, still not a well defined area, presents a lot of challenge for researchers and clinicians.

- *Education in Pharmacology* remains a hot subject in the Medical education, following the knowledge *explosion* of the last decades accompanied by a decreasing reliance on didactic teaching. The crucial question is: how and what should we teach?

We hope that the round table discussions along with the invited lectures, included in this abstract book, will raise new and intriguing ques-

tions that will further stimulate research, and will contribute to new therapeutic approaches and attitudes.

I would like to thank the Editorial Board of *Review of Clinical Pharmacology and Pharmacokinetics* in particular Journal Editors Prof. S.T. Plessas and Dr C.T. Plessas for invitation and for providing the suitable and high-standard forum through which new research findings will become available to the scientific community.

The Guest Editor

Charis Liapi

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Chair of Hellenic Society of Pharmacology

REVIEW OF CLINICAL PHARMACOLOGY AND
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Expression of Drug-metabolizing Proteins in Human Brain Tumors: Preliminary Results

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Key words: Drug metabolizing enzymes, human, glioma, menigioma

S u m m a r y. The defensive genes of phase I and II metabolism of xenobiotic substances code for a number of enzymes, which have a great range of substrates, some of which are characterized as possibly tumour causes. The purpose of this study is to characterize some of the enzymes that are involved in the metabolism of xenobiotics in different types of tumor. Protein extractions were isolated from biopsy specimens, and used for protein expressions and enzyme activities. Preliminary results show a different profile of protein and enzymatic expressions between different types of brain tumors.

INTRODUCTION

The causes of different types of brain tumors cover many categories (genetic abnormalities, diet, environmental pollutants etc). The therapeutic choices for primary tumours are surgery, radiotherapy and chemotherapy. The purpose of this study is to characterize enzymes which could be involved in the metabolism of chemotherapeutics, such as aldehyde dehydrogenases (ALDHs), glutathiose S-transferases (GSTs) and certain isoenzymes of cytochrome P450 (CYPs). We have focused on menigiomas and gliomas.

METHODS

Biopsy specimens of different human brain tumors were collected. Cases were brain tumor patients who attended the Neurosurgery Department of AHEPA Hospital in Thessaloniki, from September 2006 until December 2007. Only the patients with newly diagnosed primary brain tumor with no previous radiotherapy and chemotherapy were examined. All specimens were frozen in liquid nitrogen during the surgery and then they were transferred at -80 ^{0}C, until further analysis. The examined samples were homogenized in lysis buffer. Protein extractions were isolated using NucleoSpin® RNA/Protein kit (MACHEREY-NAGEL), according to the manufacturer's instruction. The protein expressions of different drug metabolizing enzymes were examined by western blot, using specific antibodies. Furthermore, specific activity of ALDHs, GSTs and CYPs were measured.

RESULTS

Brain tumors are expressing different levels of ALDH, GSTs, and CYPs enzyme activities. The comparison between types of brain tumours showed that significant differences are produced in specific activities of these metabolizing proteins. Furthermore, some differences were shown in protein expression of the proteins that were determined with western blot.

DISCUSSION

The expression of GSTs, and CYPs isoenzymes, has been the object of numerous studies involving glioma specimens, lines and primary cultures. It is the first study where different tumor types are compared as far as their drug metabolizing profile is concerned. The results will be confirmed in the mRNA level with semi-quantitative real-time PCR analysis using specific primer.

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