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.

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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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In vivo Evaluation of CUP1A2 and CYP2A6 Activities in a Greek Population during Menopause

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Key words: CYP1A2, CYP2A6, HPLC, caffeine, menopause

S u m m a r y. Human CYP enzyme system is involved in the metabolism of various endogenous compounds. Previous studies have shown that CYP activity is influenced by age and gender. In the present study caffeine metabolites were used for the evaluation of CYP1A2 and CYP2A6 in vivo activities during menopause in a Greek population. Both enzymes were significantly smaller in post menopausal women suggesting that menopause affects CYP1A2 as well as CYP2A6 activities.

INTRODUCTION

Caffeine is the drug with the largest consumption among humans, as it has become an almost universal component of the diet. Caffeine is commonly used as a probe drug for the simultaneous assessment of the phenotypes of various drug-metabolizing enzymes including CYP1A2 (1), CYP2A6 (2), xanthine oxydase (3), N-acetyltransferase-2 (4). Human CYP1A2 is involved in the metabolism of endogenous compounds and is responsible for the metabolism of many clinically used drugs (5-8). CYP1A2 is also known to be involved in the metabolism of estrogen (9). The aim of the present study was to evaluate the effect of menopause in the *in vivo* CYP1A2 and CYP2A6 activity.

METHODS

All volunteers who participated in the study were judged to be healthy according to medical history, physical examination, and routine laboratory analysis. Volunteers were divided into four groups: women in menopause, premenopausal women, men over the age of 45 and men under the age of 45. The age of 45 was selected since 45 was the age of the younger woman in menopause who participated in the study. The experimental protocol and the RP-HPLC method for quantification of caffeine and its metabolites was previously described (10). Data were expressed as mean ± S.E.M (in all cases *n*=number of subjects) and were analyzed statistically using the non parametric Mann-Whitney test.

RESULTS

The mean value of CYP1A2 *in vivo* activity of post-menopausal women (2.7±0.45; n=25) was significantly smaller compared to pre-menopausal women (3.6±0.7; n=20; p<0.001), men over 45 (3.4±0.5; n=25; p=0.005) and men under 45 (3.5±0.4; n=20; p=0.005). Regarding CYP2A6 *in vivo* activity a statistically significant difference was found between post- (2.6±1.8; n=25) and premenopausal women (1.6±1.2; n=20; p=0.001). There was no other significant difference among all other groups examined (men >45: 2.3±1.2; n=25; men<45: 2.4±1.4; n=20).

DISCUSSION

In the present study we have shown for the first time that menopause may affect CYP1A2 and CYP2A6 *in vivo* activity, as assessed by the use of caffeine as a metabolic within the Greek population. These findings may provide valuable information regarding, not only the role of menopause in *in vivo* CYP activity, but also the individuation in prescribing drugs in post menopausal women.

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