

7th Euro-Global Summit on

Toxicology & Applied Pharmacology

October 24-26, 2016 Rome, Italy

Are paraoxonase activities a marker of changes in the liver of healthy women caused by the use of oral contraceptives?

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The aim of the study was to verify the influence of oral contraceptives (OCs) on the arylesterase, lactonase and phosphotriesterase activities of paraoxonase 1 (PON1), hepatic enzymes such as aspartate aminotransferase (AST) and alanine aminotransferase (ALT) as well as lipid profile including cholesterol, triglycerides (TG), high-density lipoprotein (HDL) and low-density lipoprotein (LDL) in young healthy women. Additionally, the de Ritis ratio (AST/ALT) was calculated. Blood samples were collected from 120 women in similar age (22.6 ± 1.0 years) with similar BMI value (20.71 ± 2.20 kg/m²). Participants were divided into 2 groups: 46 women taking (group A) and 74 females do not take oral contraceptives (group B). Our study showed increase in ALT activity in group A (27.35 ± 11.18 U/l) when compared to group B (18.44 ± 8.58 U/l), while the de Ritis ratio was lower in group A (0.71 ± 0.35) than in group B (1.06 ± 0.63). Higher TG concentration (73.06 ± 15.44 mg/dl) was observed in group A (56.89 ± 19.71 mg/dl) than in group B; while LDL level showed a decrease in group A (90.45 ± 20.21 mg/dl) in comparison to group B (107.14 ± 26.07 mg/dl). The phosphotriesterase activity in group A was lower (79.08 ± 18.47 U/l) when compared to group B (125.54 ± 58.24 U/l), while increase in both arylesterase (167.53 ± 20.91 vs. 184.33 ± 32.69 U/l) and lactonase (9.27 ± 2.29 vs. 10.98 ± 3.36 U/l) were found. The use of OCs changes the lipid profile, causing the increase in TG and decrease in LDL levels. Lactonase activity of paraoxonase can be a useful marker of liver function in women taking OCs.

Biography

Halina Milnerowicz has completed her PhD in 1980 from Ludwik Hirszfeld Institute of Immunology and Experimental Therapy Polish Academy of Sciences and Post-doctoral studies from Wrocław Medical University, Faculty of Pharmacy. Since 2004, she is the Head of Department of Biomedical and Environmental Analyses. In 2008, she has got the title of Professor of Pharmacy Sciences. She was also Vice-Rector for University Development and Deputy Dean of the Division of Laboratory Diagnostics in Faculty of Pharmacy. She has published more than 140 papers in reputed journals and has been awarded at numerous Polish and international conferences.

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