

ICFAR 2023



1st International Conference on Frontiers in Academic Research

February 18-21, 2023: Konya, Turkey

Abstract Book

**ABSTRACT BOOK OF
1ST INTERNATIONAL
CONFERENCE ON
FRONTIERS IN
ACADEMIC RESEARCH**

ABSTRACT BOOK OF 1ST ICFAR 2023:

Editors:

Asst. Prof. Dr. Umut Özkaya

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INTRODUCTION

We had the great honor of organizing the 1st International Conference on Frontiers in Academic Research ICFAR 2023. It was truly a great pleasure for us to greet a lot of participants from many different countries attending ICFAR 2023! We firmly believe that the conference will become an important international event in the field of cross-industry discussion about innovations in Academic Studies.

Three cooperating organizations supported the four-day conference. There were 302 papers accepted for presentation at ICFAR 2023, contributed from different countries. We had plenary speeches and several well-known scientists and experts, to give invited talks at different sessions.

The purpose of ICFAR 2023 was to provide a forum for the participants to report and review innovative ideas, with up-to-date progress and developments, and discuss novel approaches to the application in the field of their own research areas and discuss challenges of doing science.

We sincerely hope that the exchange of ideas on doing research, science and improving education will help the participants, and international cooperation sharing the common interest will be enhanced.

On behalf the Organization Committee of ICFAR 2023, we would like to heartily thank our cooperating organizations for all they have done for the conference. We would also like to thank the authors for their contribution to the proceedings; the participants and friends of ICFAR 2023, for their interest and efforts in helping us to make the conference possible; and the Editorial boards for their effective work and valuable advice, especially the ICFAR 2023 secretariat and the ICFAR 2023 staff, for their tireless efforts and outstanding services in preparing the conference and publishing the Proceedings.

Asst. Prof. Dr. Umut Özkaya

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Selenium use potency in the treatment of patients with non-alcoholic fatty liver disease and concomitant arterial hypertension

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Abstract – Damaged hepatocytes at various stages of non-alcoholic fatty liver disease (NAFLD) provoke a decrease in mitochondria oxidative capacity. Oxidative stress can play a crucial role in the progression of concomitant cardiovascular pathology in patients with NAFLD. Studies have revealed the positive antioxidant effect of selenium, as an important element of cellular and endocrine metabolism. Selenoprotein P (Sel P), which is secreted mainly in the liver parenchyma, directly influence on the selenium antioxidant effect.

The **aim** is to investigate the effect of selenium-containing drugs on hepatic metabolism and selenium exchange in the complex therapy of patients with NAFLD with concomitant hypertension (HTN).

Materials and methods. The study included 49 patients of the main group (67.3% women) with NAFLD and HTN; 51 patients of the comparison group with isolated NAFLD (58.8% women), 20 practically healthy individuals of the control group (55.0% women). The median age, respectively, was 51.0 [45.0; 56.0] years ($p_{1-3} = 0.980$), 52.0 [47.0; 54.0] years ($p_{1-2} = 0.610$) and 51.0 [45.0; 55.5] years ($p_{2-3} = 0.564$), respectively.

The body mass index (BMI) was calculated according to the standard method.

The levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) were measured according to the standard method (kinetic method). Gamma-glutamine transpeptidase (GGTP) was measured by the enzymatic colorimetric method, alkaline phosphatase (AL) by the colorimetric method.

Sel P and selenium levels were determined using the immunofluorescence method using ElabScience (USA) reagents.

The diagnosis of NAFLD and HTN was established in accordance with local and international recommendations. Ultrasound examination of the liver was performed according to the standard method on an empty stomach on a Samsung (Medison) SonoAce X8 device.

Statistical calculations were performed using IBM® SPSS® 25.0 for Windows®.

Results.

BMI analysis showed the correspondence of the indicator to normal or increased body weight in all study groups: 27.8 [26.6; 28.5] kg/m² in the main group, 27.3 [24.2; 28.3] kg/m² in the comparison group ($p_{2-3} = 0.031$), 24.3 [21.9; 26.0] kg/m² in the control group ($p_{1-2} < 0.001$).

Median levels of systolic blood pressure (SBP) in the main group were: 150.0 [145.0; 158.0] mm Hg ($p_{2-3} = 0.012$), comparison and contrast groups 125.0 [115.0; 130.0] and 120.0 [110.0; 120.0] ($p_{1-3} < 0.001$); levels of diastolic blood pressure 90.0 [85.0; 90.0] mm Hg ($p_{2-3} < 0.001$) in the main group, in the comparison and control groups, respectively, 80.0 [70.0; 80.0] mm Hg ($p_{1-3} = 0.918$).

Comparison analysis demonstrated reliable decrease of aspartat aminotransferase levels (from 43,1 to 41,7 U/l ($p=0.018$) and increase of selenium metabolism levels: Sel P from 42,1 to 53,6 ng/ml ($p\leq 0.001$), selenium from 65,3 to 89,1 $\mu\text{g/ml}$ ($p=0.009$) in the group with isolated NAFLD (table 1).

Table 1 Median levels of liver tests, selenium and selenoprotein P P, Me [IQR]

Indicator	NAFLD+HTN (n = 49)			NAFLD (n = 51)			p1–2	p3–4
	No (n = 27)	Yes (n = 22)	p	No (n = 22)	Yes (n = 29)	p		
Sel P, ng/ml	43,3 [40,8; 50,1]	46,3 [34,1; 54,4]	0,560	42,1 [37,5; 46,1]	53,6 [43,1; 60,4]	0,001	0,310	0,060
Selenium, mkg/ml	72,3 [54,3; 85,9]	71,5 [64,2; 82,9]	0,574	65,3 [59,5; 75,9]	89,1 [63,4; 99,5]	0,009	0,494	0,080
ALT, U/l	42,9 [39,7; 49,9]	43,0 [38,0; 47,8]	0,540	43,2 [39,4; 49,3]	40,0 [32,5; 45,6]	0,075	0,864	0,171
AST, U/l	41,7 [36,6; 47,7]	44,6 [39,9; 48,4]	0,439	43,1 [40,2; 53,1]	41,7 [32,6; 43,2]	0,018	0,198	0,045
GGTP, U/l	64,2 [55,3; 73,5]	59,8 [54,3; 69,0]	0,213	64,7 [56,3; 71,3]	60,2 [51,9; 65,0]	0,094	0,794	0,594
AL, U/l	170,4 [146,7; 180,1]	175,0 [162,3; 187,8]	0,587	178,9 [151,2; 193,4]	157,6 [134,4; 188,8]	0,106	0,315	0,183

Note:

p1–2 is the reliability of differences between groups without treatment

p3–4 — reliability of differences between groups with treatment

Conclusion.

In this study, a reliable positive effect on liver and selenium metabolism was noted in patients with isolated NAFLD after the use of selenium-containing compounds in treatment. There are positive changes in patients with a comorbid course of NAFLD+HTN, although they are statistically unreliable. The presence of such results actualizes the further study of the influence of selenium metabolism on the liver parenchyma in NAFLD and the addition of selenium-containing agents to the complex treatment.

Keywords – non-alcoholic fatty liver disease, selenium, oxidative stress, arterial hypertension