EUROPEAN CONFERENCE

Conference Proceedings

IV International Science Conference «Trends in the development of science as the main way to replace old technologies»

January 27-29, 2025

Plovdiv, Bulgaria

TRENDS IN THE DEVELOPMENT OF SCIENCE AS THE MAIN WAY TO REPLACE OLD TECHNOLOGIES

Abstracts of IV International Scientific and Practical Conference

Plovdiv, Bulgaria
(January 27-29, 2025)

UDC 01.1

ISBN – 9-789-40377-572-2

The IV International scientific and practical conference «Trends in the development of science as the main way to replace old technologies», January 27-29, 2025, Plovdiv, Bulgaria. 250 p.

The recommended citation for this publication is: Khromykh N., Didur O. Antibacterial potential of biosynthesized silver nanoparticles and their conjugates with ceftriaxone. Abstracts of IV International Scientific and Practical Conference. Plovdiv, Bulgaria. Pp. 37-40.

URL: https://eu-conf.com/en/events/trends-in-the-development-of-science-as-the-main-way-to-replace-old-technologies/

TABLE OF CONTENTS

RELATIONSHIP BETWEEN HYPERURICEMIA AND ANEMIA IN GOUT

Lazarenko Olha,
Ph.D., assistant,
Dnipro State Medical University,
Kryvyi Rih, Ukraine

Kuzmina Ganna,
doctor of medical sciences, professor,
Dnipro State Medical University,
Kryvyi Rih, Ukraine

Introductions. High serum uric acid (SUA) is a risk factor of cardiovascular disease (CVD). Abnormal SUA have been correlated with a significant increase in mortality. Anemia is an independent predictor of mortality and CVD. To date, no study has investigated the relationship between SUA and anemia [1].

According to the literature, SUA level are positively correlated with iron level. Preliminary data support the role of iron deficiency in the pathogenesis of gout [2].

Several studies have suggested that iron may be a trigger for exacerbation of gout. Iron may be a causative factor in gouty arthritis, a hypothesis based on the iron content of tophi and synovial membrane [3, 4].

A study on the association between gout and anemia indicated that anemia is an independent risk factor for gout in middle-aged people. In addition, the findings showed that anemia was associated with approximately 2 times increased risk of gout, independent of kidney function and SUA [3, 5, 6].

Aim. Determining the prevalence of anemia in gout, establishing a correlation between SUA level and anemia.

Materials and methods. 30 men with gout were examined. Anemia was defined as a hemoglobin level <130 g/L. Hyperuricemia was defined as SUA level ≥ 7,0 mg/dL in men. The relationship between SUA and anemia was explored using multivariate linear regression models.

Results and discussion. Anemia is more common in patients with gout than in patients without it (4,3% vs. 2,3%, $p<0,001$). Patients with gout develop anemia twice as often as patients without gout ($p<0,05$).

Patients with gout have significantly increased concentrations of ferritin and high-sensitivity C-reactive protein (hs-CRP) ($p<0,05$). In addition, a positive correlation was found between these indicators ($p<0,05$). It should be noted that ferritin and hs-CRP levels are risk factors for gout.

Age and BMI were positively correlated with anemia, whereas serum iron, white blood cells and SUA were negatively associated with anemia. Smokers and alcohol

users had a lower incidence of anemia. Hypertension and diabetes had higher risks of anemia.

The findings show that high and low SUA levels are linked to increasing anemia. Further studies should be conducted to elucidate the biological pathways implicated in the relationship between SUA and anemia.

Conclusions. Anemia is a common comorbid condition in patients with gout, negatively affecting quality of life, physical activity, and cardiovascular function. This condition is multifactorial and requires an in-depth diagnostic search, careful clinical evaluation, and consideration of effective treatment and prevention methods.

References

1. Wang et al. Association of serum uric acid with anemia in U.S. adults: a cross-sectional study using secondary data. BMC Cardiovascular Disorders. 2023; 23: 291.

2. Ali N, Miah R, Hasan M, Barman Z, Mou AD, Hafsa JM, et al. Association between serum uric acid and metabolic syndrome: a cross-sectional study in bangladeshi adults. Sci Rep. 2020; 10: 7841.

3. McAdams-DeMarco MA, Maynard JW, Coresh J, Baer AN. Anemia and the onset of gout in a population-based cohort of adults: atherosclerosis risk in Communities study. Arthritis Res Ther. 2012; 14: R193.

4. Hu L, Hu G, Xu BP, Zhu L, Zhou W, Wang T et al. U-Shaped Association of serum uric acid with all-cause and cause-specific mortality in US adults: a Cohort Study. J Clin Endocrinol Metab. 2020; 105.

5. Eun Y, Han KD, Kim DH, Kim IY, Park EJ, Lee S, et al. Association between anemia and hyperuricemia: results from the Korean National Health and Nutrition Examination Survey. Sci Rep. 2019; 9: 19067.

6. Copur S, Demiray A, Kanbay M. Uric acid in metabolic syndrome: does uric acid have a definitive role? Eur J Intern Med. 2022; 103: 4-12.