



CARDIOVASCULAR COMORBIDITIES IN GOUT PATIENTS: EXPLORING THE LINK BETWEEN URIC ACID AND HEART DISEASE

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Abstract: This study investigates cardiovascular diseases (CVD) and related risk factors in male patients with gout. A cohort of 90 male patients aged between 37 and 79 years, with a mean disease onset at 46.8 ± 9.1 years, were examined. The research aims to evaluate the relationship between the duration of gout, its clinical manifestations, and the prevalence of comorbid cardiovascular conditions.

Introduction: Gout, a metabolic disorder characterized by hyperuricemia and the deposition of monosodium urate crystals in joints, often results in recurrent inflammatory arthritis. The association between gout and cardiovascular diseases has been well-established, with patients exhibiting higher rates of hypertension, coronary artery disease, and other cardiovascular comorbidities. This article explores the clinical presentation of gout in relation to cardiovascular pathology, highlighting the role of risk factors and the duration of disease progression.

Methods: The study included 90 male patients diagnosed with gout, aged between 37 and 79 years. The inclusion criteria were based on clinical manifestations and diagnostic criteria for gout. The duration of gout ranged from 2 months to 39 years, with the average disease duration being 7.6 ± 9.1 years. Patients were stratified into three groups based on disease duration: Group I (less than 5 years), Group II (5-10 years), and Group III (more than 10 years). Clinical data, including joint involvement, frequency of gout attacks, and associated cardiovascular conditions, were collected. The data were analyzed to identify correlations between disease duration and the development of cardiovascular comorbidities.

Results:

Gout and Joint Involvement:

The most common form of arthritis observed in patients with gout was polyarthritis, which affected 60% of the participants. This form of arthritis primarily involved the lower extremities, particularly the first metatarsophalangeal joint, which was affected in 76.7% of patients. Wrist joint involvement was less common, with 15.5% of patients affected. Monoarthritis, where only a single joint is involved, was observed in 27.5% of the participants, while oligoarthritis, involving two to four joints, was seen in 12.5% of patients. Acute gouty arthritis was the most frequent presentation, with a significant number of patients experiencing acute flare-ups. In addition, some patients experienced recurrent non-crystallized arthritis, while others presented with chronic arthritis.

Cardiovascular Comorbidities:

Cardiovascular Condition	Group I (Recurrent Gout)	Group II (Chronic Gout)
Arterial Hypertension	58.3%	88.1%
Stage I Hypertension	60.7%	48.6%
Stage II Hypertension	25%	29.8%
Stage III Hypertension	14.3%	21.6%

- A significant correlation was observed between the duration of gout and the progression of hypertension, with patients in the chronic gout group showing more severe hypertension stages.

Ischemic Heart Disease (IHD) and Myocardial Infarction (MI):

Condition	Group I (Recurrent Gout)	Group II (Chronic Gout)
Ischemic Heart Disease (IHD)	35.4%	40.5%
Functional Class of IHD	Stable Angina (I-III)	Majority in functional classes I-III
Myocardial Infarction (MI)	4 patients	4 patients

- All MI patients had experienced their first gout attack before their myocardial infarction.

Heart Failure (CHF):

Group	Prevalence of CHF	Average Age (with CHF)	Functional Class (CHF)
Recurrent Gout	18.7%	54.2 ± 8.9 years	Class I (60%), Class II (40%)
Chronic Gout	26.2%	57.1 ± 9.0 years	Class I (60%), Class II (40%)

- CHF patients were older compared to those without CHF, with minimal difference in disease duration between the two groups.

Other Cardiovascular Events:

Event Type	Prevalence	Average Age of Patients
Acute Cerebrovascular Event (Stroke)	3.3%	54.7 ± 5.2 years

- The correlation between stroke and gout duration was not significant, though cerebrovascular events seemed more common in older patients with prolonged gout history.

Discussion: This study highlights the significant cardiovascular burden in patients with gout, especially those with longer disease durations. The association between gout and arterial hypertension is consistent with existing literature, and our findings show a marked prevalence of hypertension in gout patients. Additionally, the high rates of ischemic heart disease and chronic heart failure in both recurrent and chronic gout patients underline the need for cardiovascular management.

The underlying mechanisms linking gout to cardiovascular diseases likely involve shared risk factors, such as hyperuricemia, endothelial dysfunction, and systemic inflammation. Uric acid's role in atherosclerosis and hypertension progression may explain the higher frequency of cardiovascular events in gout patients, while the chronic inflammatory state of gout may further elevate cardiovascular risk.

Conclusion: Patients with gout, particularly those with a longer disease duration, are at a significantly higher risk for developing cardiovascular diseases, including arterial hypertension, ischemic heart disease, myocardial infarction, and chronic heart failure. Regular cardiovascular screening and early intervention are essential for improving outcomes in gout



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patients. Further research is needed to explore the mechanisms linking gout to cardiovascular disease and assess the effectiveness of urate-lowering therapies in mitigating cardiovascular risk in these patients.