

Development of Clinically Evident Gout: A Closer Look at Elevated Serum Urate Levels

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Highlight: Serum urate level is a strong predictor of incident gout, but only about half of patients with hyperuricemia develop clinically evident gout.

Body

Although elevated serum urate level is a strong concentration-dependent predictor of incident [gout](#), clinically evident gout develops in only about half of patients with hyperuricemia, according to the results of a recent individual participant data analysis published in *Annals of the Rheumatic Diseases*.

The investigators used participant data from 4 publicly available cohorts, including the Atherosclerosis Risk in Communities (ARIC) study, the **Coronary Artery Risk Development in Young Adults (CARDIA) study**, the original cohort of the Framingham Heart Study, and the offspring cohort of the Framingham Heart Study. Researchers calculated the cumulative incidence of clinically evident gout according to baseline serum urate category.

[HMCMS AD]

A total of 18,889 patients who did not have gout at baseline were included in the analysis. Participants were followed for a mean 11.2x14.2 years, with a total of 212,363 patients-years of follow-up. There were 8280 men in the analysis, and the mean age at the time of baseline serum urate testing was 49 years. The largest number of participants were from the ARIC cohort (n=10,775), followed by the **CARDIA cohort** (n=3470).

The overall cumulative incidence of gout for all participants was 0.6% (95% CI, 0.4-0.8) by 3 years, 1.1% (95% CI, 0.9-1.3) by 5 years, 2.4% (95% CI, 2.2-2.6) by 10 years, and 3.2% (95% CI, 2.8-3.6) by 15 years. At all time points, the cumulative incidence of gout was lower among women than among men.

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The cumulative incidence of gout at each time point varied according to baseline serum urate levels, with the 15-year cumulative incidence ranging from 1.1% (95% CI, 0.9-1.4) for levels <6 mg/dL to 49% (95% CI, 31-67) for

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levels ≥ 10 mg/dL. When compared with baseline serum urate levels < 6 mg/dL, the adjusted hazard ratios were 2.7 for baseline serum urate levels 6.0 to 6.9 mg/dL, 6.6 for levels 7.0 to 7.9 mg/dL, 15.0 for levels 8.0 to 8.9 mg/dL, 30.0 for levels 9.0 to 9.9 mg/dL, and 64.0 for levels ≥ 10 mg/dL.

The investigators concluded that because clinically evident gout develops in only approximately 50% of participants with serum urate concentrations ≥ 10 mg/dL, this suggests a possible role for prolonged hyperuricemia and additional factors in the pathogenesis of gout.

Reference

Dalbeth N, Phipps-Green A, Frampton C, Neogi T, Taylor WJ, Merriman TR. [Relationship between serum urate concentration and clinically evident incident gout: an individual participant data analysis](#) [published online February 20, 2018]. *Ann Rheum Dis*. doi:10.1136/annrheumdis-2017-212288

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