

## Long-term use of quinine for muscle cramps associated with increased risk of death

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Long-term off-label use of quinine, still prescribed to individuals with muscle cramps despite Food and Drug Administration warnings of adverse events, is associated with an increased risk of death, according to a study published by *JAMA*.

Laurence Fardet, M.D., Ph.D., of the Universite Paris Est Creteil, France and colleagues used data from a UK primary care database and included adults who received new quinine salt (sulfate, bisulfate, dihydrochloride) prescriptions for idiopathic (unknown cause) muscular cramps or restless leg syndrome for at least one year from January 1990 to December 2014 at an average dosage of 100 mg/d or more (exposed group).

The study population included 175,195 individuals; median follow-up was 5.7 years. Exposed persons received a median 203 mg/d of quinine. There were 11,598 deaths (4.2 per 100 person-years) among the exposed individuals vs 26,753 (3.2 per 100 person-years) among the unexposed individuals. The increase in the risk of death was more pronounced (approximately three times) in those younger than 50 years. A dose-effect was found for exposure to doses 200 mg/d and higher compared with less than 200 mg/d.

Many drinks such as bitter lemon or tonic waters contain quinine. Individuals in this study received more than 100 mg/d of quinine, equivalent to a daily consumption of more than one liter of bitter lemon or tonic waters.



Limitations of the study are noted in the article.

"The benefits of quinine in reducing cramps should be balanced against the risks," the authors write.

**More information:** *JAMA* (2017). jamanetwork.com/journals/jama/....1001/jama.2017.2332

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