

Serious risks associated with using Quinine to prevent or treat nocturnal leg cramps

Quinine is FDA-approved for the treatment of uncomplicated *Plasmodium falciparum* malaria. It is not considered safe and effective for the treatment or prevention of leg cramps-- an "off-label" (non-FDA-approved) use. Quinine is associated with serious and life-threatening adverse events, including

- thrombocytopenia,
- hypersensitivity reactions, and
- QT prolongation.

Thrombocytopenia associated with the use of quinine for the treatment or prevention of leg cramps includes

- immune thrombocytopenic purpura
- hemolytic uremic syndrome
- thrombotic thrombocytopenic purpura with associated renal insufficiency.

Fatalities and renal insufficiency requiring hemodialysis have been reported.

Drug use data from office-based physician practices in the U.S., indicate that approximately ninety-two percent of quinine use is associated with the off-

label indications relating to leg cramps and muscle pain.¹ Since 2006, there have been a number of efforts to educate healthcare professionals about these serious risks. These efforts include labeling changes, adding



a boxed warning regarding hematologic events associated with off-label use of quinine, and FDA and pharmaceutical industry communications.

Despite these efforts, awareness among prescribers regarding the approved indication for quinine and the adverse events associated with its use for the treatment/prevention of leg cramps continues to be concerning.

Drug Use

There has been a dramatic decline in the use of quinine over the past several years. In 2011, an estimated 51,800 patients re-

ceived a dispensed prescription for quinine from U.S. outpatient retail pharmacies. In contrast, an estimated 206,000 patients received a dispensed prescription for quinine in 2008.² Cumulatively from 2008 to 2011, general practice/family medicine/doctor of osteopathy specialties and internal medicine specialties prescribed the majority of dispensed prescriptions for quinine.³ Although use has declined, the FDA remains concerned because the majority of quinine use is associated with off-label indications relating to leg cramps and muscle pain, and serious adverse events continue to be reported.

The agency will continue to monitor quinine use and remind healthcare professionals about the serious risks associated with quinine in the prevention/treatment of nocturnal leg cramps.

— Janelle Derbis

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¹ Encuity Research, Physician Drug and Diagnosis Audit™. Years 2008-2011. Data extracted July 2012.

² IMS Health, Vector One®: Total Patient Tracker. Years 2008-2011. Data extracted July 2012.

³ IMS Health, Vector One®: National. Years 2008-2011. Data extracted July 2012.