G6PD - Chloroquine (Pharmacogenomics)

Testing Recommendation
Testing may be considered

See also Definitions and Criteria for Testing Recommendations and Ratings.

Evidence Rating
Outcome*: Hemolytic Anemia – Overall Evidence Quality: Poor (Evidence of Association: Weak; Evidence of Testing Benefit: Weak)

Outcome with the highest overall evidence quality is displayed here. The discussion below describes evidence related to all outcomes for which there are meaningful published data.

Management
Chloroquine may cause hemolytic anemia in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency, particularly in association with other drugs that cause hemolysis. Blood monitoring (complete blood cell counts) may be indicated (Chloroquine 2018). The Centers for Disease Control and Prevention (CDC) guidelines for treatment of malaria do not make any recommendations regarding testing for G6PD deficiency prior to initiation of chloroquine (CDC 2019).

Related Information

- Chloroquine
- Glucose-6-Phosphate Dehydrogenase

Index Terms
Chloroquine; G6PD; Glucose-6-Phosphate Dehydrogenase

Discussion
There were no cases of hemolysis after 74 healthy, G6PD-deficient volunteers (from a region of Sub-Saharan Africa in which class III G6PD deficiency predominates) received a 3-day regimen of chloroquine (1,500 mg total dose) and methylene blue (780 mg total dose) (Mandi 2005). Five case reports (four of which were confirmed to be G6PD-deficient) documented young patients (ages 9 to 19) with acute viral hepatitis developed severe intravascular hemolysis and high levels of serum bilirubin after suspected administration of chloroquine, among other medications (Agarwal 1985). Two children received combination treatments that included chloroquine in a report of 20 cases of children who suffered from hemolysis and had G6PD deficiency (Choudhry 1990). Similarly, 12 of 35 children with G6PD deficiency who experienced hemolysis in another report had recently taken antimalarials, although the antimalarials given were not specified (Sarkar 1993). An evidence-based review concluded that chloroquine was

likely safe at normal doses in G6PD deficient patients but advised caution when coadministering chloroquine with other medications that may also have adverse hematologic effects (Youngster 2010).

References
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Last Updated 3/30/20