Hydroxychloroquine

Hydroxychloroquine (Plaquenil) is an antiparasitic and immunosuppressive drug. The antiparasitic mechanism of action involves interference within the acidic environment of a parasite. Hydroxychloroquine also interacts with immune cells impeding the innate immune response. This medication is used to treat malaria, rheumatoid arthritis, systemic lupus erythematosus, and porphyria cutanea tarda. Side effects include cardiotoxicity and retinopathy. Patients should undergo ophthalmological examination within one year of starting therapy due to the risk of irreversible retinopathy.



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Mechanism of Action

Immunosuppressant
Moon-suppressed
Hydroxychloroquine impedes the innate immune response via decreased activation of B-cells. Neutrophils and eosinophils are also inhibited with this medication. For this reason, hydroxychloroquine is useful in hyperimmune or autoimmune diseases.

Indications

Malaria
Malaria-mullet Mosquito
Hydroxychloroquine is used for the treatment of uncomplicated malaria caused by Plasmodium species and for prophylaxis of malaria in geographic areas where chloroquine resistance is not present. The medication interferes with the acidic digestive vacuoles within the parasites that lead to their death via damage to membranes and other critical biomolecules.

Rheumatoid Arthritis
Roman King-Arthur
Hydroxychloroquine is used for treatment in adults with acute and chronic rheumatoid arthritis. This autoimmune disease causes an inflammatory response most commonly found in the joints of the hands, feet, wrists, elbows, knees, and ankles. This medication is used to decrease inflammation and the immune response that lead to common symptoms such as joint pain and swelling.

Systemic Lupus Erythematosus (SLE)
Loopy-butterfly
Hydroxychloroquine is used for the treatment of systemic lupus erythematosus (SLE) and chronic discoid lupus in adults. These are both autoimmune diseases, thus hydroxychloroquine can help quell the inflammation and subsequent symptoms.

Porphyria Cutanea Tarda
Poor-fairy
Hydroxychloroquine, given twice weekly, is used for porphyria cutanea tarda either for initial therapy or an alternative when phlebotomies are difficult to perform. It's an appropriate choice in patients with serum ferritin <600ng/mL, heterozygosity or no HFE mutation.

Side Effects

Cardiotoxicity
Heart with Toxic-green-glow
Cardiomyopathy is reported during acute and chronic therapy with HCQ. Monitor for signs and symptoms of cardiotoxicity including atrioventricular block, pulmonary hypertension, sick sinus syndrome, QT prolongation, or other EKG findings. If a patient presents with these clinical findings, immediate discontinuation of hydroxychloroquine is recommended.

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Retinopathy

Wavy Red-tin-eyes

Hydroxychloroquine has been associated with retinopathy that can cause permanent damage. The risk of retinopathy is correlated with dose and duration of use. On fundoscopy, a “bullseye” appearance of the macula is an indication of serious hydroxychloroquine-associated retinotoxicity. This medication can also cause corneal damage such as cornea verticillata which are whorl-like deposits can form on the cornea. The corneal damage is often reversible upon discontinuation of the drug.

Considerations

Ophthalmological Exams

Eye Exam

Due to the risk of retinopathy, a baseline ophthalmologic exam within 1 year of initiating therapy is recommended. If no major risk factors exist, first screening can be postponed until 5 years after initiation of therapy. Since any damage to the retina is irreversible, early detection is key to preventing progressive damage or any visual loss. The exam will typically consist of documentation of functional status, fundus evaluation, or changes in ocular conditions.

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