Chloroquine-induced retinal toxicity

To the Editor: Many patients in South Africa develop profound visual loss every year as a result of chloroquine toxicity. The patients are often oblivious of the toxic effects of the drug and have been given higher-than-recommended doses, very often due to the ignorance of prescribing doctors. These patients have not been sent for ocular testing. There is no means of reversing the drug's blinding effect.

Hydroxychloroquine (Plaquenil) is much safer than chloroquine, with a lower risk of retinal damage (maximum dose 400 mg/day or 6.5 mg/kg/day). It is currently available on motivation on a named patient basis from Sanofi Synthelabo (tel. (011) 319-8656), and should always be used instead of chloroquine.

Chloroquine-related blindness has been almost completely eradicated in Western countries where hydroxychloroquine is freely available.

Maculopathy is a much less frequent occurrence and is much less severe if hydroxychloroquine is used rather than chloroquine.[1]

Chloroquine (Nivaquine, Daramal, Plasmoquine) is an antimalarial first used during World War II. It is prescribed for treatment of amoebiasis, rheumatoid arthritis, juvenile chronic arthritis, systemic lupus erythematosus and discoid lupus and as prophylaxis against malaria.

The drug is excreted very slowly from the body and becomes concentrated in the melanin-containing cells of the retinal pigment epithelium (RPE) and choroid.

Retinal toxicity with degeneration of the RPE and neurosensory retina occur and are a severe sight-threatening complication of chloroquine use.

Most cases of toxicity have developed when a higher-than-recommended dose is used: 200 mg/day or 3.5 mg/kg/day (using lean body weight). A total cumulative dose between 100 and 300 g is usually required to cause toxicity, i.e. 200 mg/day for 3 years.

The earliest visual manifestation of retinal toxicity is a paracentral scotoma. This occurs before visual acuity loss or ophthalmoscopic fundus changes. If the drug is discontinued the scotoma usually disappears.

By the time a characteristic bull's eye maculopathy occurs there is moderate visual acuity loss (6/18 - 6/12), with an area of depigmentation around the fovea surrounded by a ring of hypopigmentation. This enlarges slowly. This stage of retinopathy may progress even if the drug is stopped, and indicates irreversible damage.[2]

Eventually there is end-stage maculopathy with severe visual acuity loss and marked atrophy of the RPE of the entire retina with unmasking of the choroidal vessels as well as secondary damage to the neurosensory retina. Retinal arteries become attenuated, the optic disc is pale and pigment clumps develop in the peripheral retina (pseudo-retinitis pigmentosa).

Screening is mandatory for all patients on chloroquine therapy:[3] (*i*) baseline examination by an ophthalmologist within 6 months of starting treatment; (*ii*) annual screening for the first 5 years after starting treatment if patients are taking higher-than-recommended doses and are at higher risk due to age over 60 years, or associated renal/liver or retinal disease; and (*iii*) 2-yearly for other low-risk users of chloroquine.

Fluorescein angiography is also helpful in early demonstration of RPE abnormalities before vision loss occurs.

Prevention is the best form of treatment.

Strict adherence to drug dosages is imperative. The chloroquine daily dose is thought to be more important than the cumulative dose and should be tailored according to gender and height (Table I).

Table I. Recommended daily chloroquine dosage

Females		Males	
Height (cm)	Tablets/week	Height (cm)	Tablets/week
< 146	4	< 150	5
146 - 156	5	150 - 160	6
158 - 172	6	> 162	7
> 172	7		

Pressure by rheumatologists, dermatologists and ophthalmologists to get hydroxychloroquine registered in South Africa is critical. We encourage all prescribing doctors in South Africa to switch their patients to hydroxychloroquine.[4] This will bring us in line with other countries where chloroquine-induced blindness has been virtually eliminated.

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