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Quinine Induced Headache and Visual Disturbances: A Case Report

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Abstract: Quinine is the chief alkaloid of cinchona, the powdered bark of the South American cinchona tree.Resistance to quinine is uncommon but increasing. It acts primarily against asexual erythrocytic forms and associated with dose-related toxicitieslike cinchonism, hypoglycemia, and hypotension. Mild forms of cinchonism consisting of high-tone deafness, visual disturbances and headache occur very frequently.Disturbance of vision had reported that in 17% of patients with quinine overdose, 75% of these patients were completely blind.A 30 years old female, admitted in the female general medicine department with the complaints of vomitings along with fever, chills, rigors and treated with a loading dose of quinine IV in normal saline, along with intravenously pantoprazole and intravenously ondansetron. Within one hour after administration of quinine intravenously, the patient complained severe headache and visual disturbances. Naranjo ADR scale was used to assess the causality of reported ADR (Score-7 indicating a probable association).Upon confirmation of the causality, quinine was withdrawn from the patient.The patient was treated for malaria with artesunate, ceftriaxone and was discharged two days later after he was found to be stable.
Keywords: Adverse drug reaction; Cinchonism; headache; Naranjo ADR scale; Quinine; visual disturbances

INTRODUCTION

Quinine is the chief alkaloid of cinchona, the powdered bark of the South American cinchona tree, otherwise known as Peruvian, Jesuit's, or Cardinal's bark. By 1640, cinchona used to treat fevers in Europe [1, 2]. For almost two centuries, the bark employed for medicine as a powder, extract, or infusion. In 1820, Pelletier and Caventou isolated quinine from cinchona. Resistance to quinine is uncommon but increasing. Quinine still is a mainstay for treating attacks of chloroquine- and multidrug-resistant P. falciparum malaria [3, 4]. Quinine acts primarily against asexual erythrocytic forms; it has little effect on hepatic forms of malarial parasites. The drug can administer in divided doses or by continuous intravenous infusion and treatment should begin with a loading dose to achieve effective plasma concentrations [5, 6]. Quinine is associated with a triplet of dose-related toxicities when given at full therapeutic or excessive doses. These are cinchonism, hypoglycemia, and hypotension. Mild forms of cinchonism consisting of high-tone deafness, visual disturbances and headache occur very frequently [7, 8]. Disturbance of vision had reported that in 17% of patients with quinine overdose, 75% of these patients were completely blind. However, once daily dose of quinine may cause alteration in colour vision, visual field restriction or blurring of vision. Typically, oculars symptoms develop 4-15h after overdose. The exact mechanism of headache and visual disturbances has questioned since the 1880's [9-11]

CASE REPORT AND DISCUSSION

A 30 years old female, suffering from moderate-high grade fever intermittently with chills and rigors since a week having tested malaria falciparum positive was treated with oral chloroquine and paracetamol tablets. After a week, patient develops vomitings along with fever, chills and rigors. Upon investigation, the patient diagnosed to have cerebral malaria. She admitted in the female general medicine department and treated with a loading dose of 1200 mg quinine IV in 0.9 % normal saline, along with IV pantoprazole 40 mg and IV ondansetron 8 mg. within one hour after administration of quinine intravenously, the patient complained severe headache and visual disturbances. The resident doctor thoroughly examining the patient, called the ophthalmologist. Fundoscopic examination revealed that there was no evidence of retinal ischemia and vasoconstriction and the ophthalmological examination was normal. Later, the physician suspected that it could be due to the other cause and hence spontaneously reported as an ADR. Upon systematically analyzing the ADR report, the headache suspected to have been cause by quinine. Naranjo ADR scale was used to assess the causality of reported ADR (Score-7 indicating a probable association). Careful literature survey was carried out to assess the causality of the reported ADR. Literature survey revealed that quinine could cause temporary to permanent visual loss at plasma concentration levels of 10-15mcg/ml. Upon confirmation of the causality, quinine was withdrawn from the patient. There is no

definite treatment for quinine induced headache and visual disturbances, early withdrawal of quinine from the treatment regimen and supportive management was done by maintaining good fluid and electrolyte balance is suggested in the literature. Physician attending the patient was adapted this treatment. By afternoon of the same day, the patient did not complaining of headache and visual disturbances. The patient was treated for malaria with artesunate 60 mg and ceftriaxone and was discharged two days later after he was found to be stable.

CONCLUSION

Timely reporting of this ADR helped the patient. The present case emphasizes the importance of monitoring of the plasma concentration of potentially harmful drugs and importantly it highlights the importance of adverse drug reaction monitoring.

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