Pharmacokinetics of a Single Dose (15 mg) Primaquine in Chronic Kidney Disease Patients Undergoing Haemodialysis

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Sir,

Primaquine, an 8-aminoquinoline, approved in 1952, is used as an anti-relapse agent for *P. vivax* (15 mg/d x 14) and gametocidal for *P. falciparum* (45 mg single dose). Although the drug is widely used, there is a dearth of information regarding its disposition in patients with chronic kidney disease (CKD). The drug preferentially binds to the acute phase reactant protein alpha 1-acid glycoprotein (AAG),¹ which is elevated in patients with uraemia as well as during haemodialysis.² Furthermore, the incidence of malaria associated acute renal failure (MARF) is increasing and haemodialysis was shown to be effective.³⁴ We present in this letter, data on two patients where pharmacokinetics of primaquine was evaluated in patients with CKD undergoing haemodialysis.

The study was carried out between June 2010 and August 2011 after obtaining approval from the institutional review board (IRB) – committee for academic research ethics (CARE), Seth GS medical college and KEM hospital, Mumbai, India. Written informed consent was obtained from participants, those with CKD [stage V (on dialysis)] as per national kidney foundation – kidney disease outcome quality initiative (NKF-KDOQI),⁵ a normal G6PD activity and hemoglobin greater than 7 g/dl were recruited. None were receiving concomitant medications known to interact with primaquine.

After an oral single dose of 15 mg Primaquine following 30 minutes after a standardised breakfast, 5 ml of blood was collected pre dose and 0·5, 1·0, 1·5, 2, 3h post dose, after which they underwent a 4 hour haemodialysis.

![Fig. 1: Plasma concentration versus time curve](image-url)
session with the blood flow rate between 200 and 350 ml/min. Samples were further collected mid-dialysis (5 hours post dose) and at 8, 12, and 24 h post dose. Primaquine was measured by high performance liquid chromatography. A concentration versus time curve for both the patients is depicted in Figure 1 and all the pharmacokinetic parameters (Table 1) were comparable to data from normal healthy individuals as reported in western countries indicating that haemodialysis does not appear to alter the systemic exposure to a single oral dose (15 mg) primaquine in CKD patients and was well tolerated with no report of any adverse event.

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**Conflict of Interest**

The authors have no conflict of interest.

**References**


