RESEARCH NOTE

ACUTE TOXICITY TESTS OF ANTIPLASMODIAL N-ALKYL AND N-BENZYL-1,10-PHENANTHROLINE DERIVATIVES IN SWISS MICE

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Abstract. Five new derivatives of N-alkyl and N-benzyl-1,10-phenanthroline had been shown to inhibit growth in vitro of Plasmodium falciparum FCR3 and in vivo of P. berghei. Acute toxicity tests demonstrated that some of those compounds had wide therapeutic indices. Safety tests of five N-alkyl and N-benzyl-1,10-phenanthroline derivatives were conducted in five groups of Swiss mice by a single intraperitoneal injection with various amounts of the test compounds, with chloroquine as comparison. Signs of toxic effects were observed during 24 hours and observations were continued for 14 days on the surviving mice. Mice were weighed before and after the test period. There were immediate behavioral changes among mice in the high dose group including restlessness, tremor, convulsion and eventually death, which was postulated to be due to the test compounds acting on the nervous system. There was no dose-dependent histopathological changes in the internal organs. Histopathological changes, such as congestion, degeneration and necrosis, were not found. There are no significant differences in mean weight gain among the groups of mice treated with the different compounds and controls. These results indicated that those new N-alkyl and N-benzyl-1,10-phenanthroline antiplasmodial compounds were toxic at high dose, but at non-toxic doses had no effect on weight gain and no histopathological effects on the appearance of internal organs.

Keywords: antiplasmodials, histopathology, N-alkyl and N-benzyl-1,10-phenanthroline derivatives, safety test