Reviewer's report

Title: Antimalarial activity of plumbagin in the in vitro and animal models

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Reviewer: Porntip Chavalitshewinkoon-Petmitr

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Comments for “Antimalarial activity of plumbagin in the in vitro and animal models”

In this study, in vitro antimalarial activity of plumbagin was determined using P. falciparum 3D7 and K1 clones. Its in vivo activity was also investigated against P. berghei-infected mice on 4-day suppressive test. Acute and subacute toxicity test were performed at various doses of plumbagin. Survival time of mice and % parasite suppression were monitored and obtained results were compared with chloroquine treated mice. Authors concluded that 25 mg/kg body weight given for 4 days showed the most potent antimalarial activity. Based on the results, it seems that plumbagin can cause a weight loss in male mice in the subacute toxicity test. In addition, plumbagin is poorly water soluble so results obtained from animal model in this study might not reflect the its actual toxicity if liposomal formulation is used.

Comments

1. Why did IC50 of ethanolic extract of plumbagin from Plumbago indica Linn in this study (IC50=0.11 mg/ml) on 3D7 P. falciparum greatly differ from previous study by Simonsen et al., 2001 (IC50=17 mg/ml)?

2. One more table should be added to show IC50s of all tested drugs.

3. In Results (p.8, line 180), it should be Table 2 not Table 3 as mentioned in the text.

3. In Figure 2, obviously there is a reduction in body weight of male mice compared with the control but authors mentioned that there was no abnormality in body weight (p.8-9).

4. Table 1 and 2 can be combined. What is the % of Tween-80 used in the control group in Figure 2? Please correct it.

5. There are some confusing sentences and difficult to understand such as on p.7 lines 146-148 so please correct it.

6. Authors should try to discuss why plumbagin was more potent against chloroquine-resistant P. falciparum than the sensitive parasite in term of their drug targets.

Level of interest: An article whose findings are important to those with closely
related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests