Effect of *Artemisia vulgaris* ethanolic leaf extract on end-stage disease associated with *Plasmodium berghei* rodent malaria

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Artemisinin isolated from *Artemisia annua* is the most potent antimalarial against chloroquine resistant falciparum malaria. We previously reported that ethanolic leaf extract of *Artemisia vulgaris* (AVELE), the only *Artemisia* species in Sri Lanka, possess both potent and safe anti-malarial activity in a *Plasmodium berghei* murine malaria model. A characteristic feature of malaria is the presence of fever episodes. Rare attempts have been made to observe this phenomenon in rodent models. Mice infected with *Plasmodium berghei* are considered to be in end- stage disease when their body temperature rapidly drops (= 35.5 ^{0}C/95 ^{0}F), 7 or 8 days post infection and usually die within 24 h, as a consequence of cerebral malaria. Thus, effect of AVELE on end-stage disease associated with *P. berghei* rodent malaria was investigated.

Four groups of male ICR mice (N=8/group) were injected intraperitoneally with 10^{7} infected *P. berghei*-RBC on day zero. AVELE (500mg/kg, 750mg/kg, 1000mg/kg) and control (5% ethanol) were orally administered to all from day zero through day three, where their rectal temperatures (RT) and parasitaemia were monitored from day zero through day six. RT of normal, uninfected mice (N=8) were also recorded. RT of the mice was recorded twice daily, once in the morning (9.00 h- 10.00 h) again in the evening (15.00.h- 16.00 h).

Within 6 hours (morning compared with evening), RT of the mice fluctuated by 3 ^{0}F in the control from day 1 through day 6, which is a significant (P= 0.01) drop compared with the normal, uninfected group. Importantly, test mice treated with 500, 750 and 1000 mg/kg doses of AVELE significantly (P= 0.01) deviated from this and clearly maintained normal RT until day 5 and 6 post inoculation.

In conclusion, this study for the first time demonstrated that the oral administration of crude AVELE significantly altered the end-stage disease encountered in *P. berghei* murine malaria.

Key words: Murine malaria, *Plasmodium berghei,* Cerebral malaria, End- stage disease, *Artemisia vulgaris*

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