



INTISARI

Latar Belakang: Salah satu komplikasi tersering dari infeksi *P. falciparum* adalah malaria cerebral yang mengakibatkan gangguan neurologis akibat tersumbatnya pembuluh darah kecil di otak dan menyebabkan hipoksia jaringan. Minyak *Allium sativum* memiliki aktivitas fibrinolisis, anti-inflamasi, anti-thrombosis, dan anti-platelet sehingga berpotensi mampu mengurangi derajat *cytoadherence* pada penderita malaria cerebral.

Tujuan: Mengetahui efek pemberian kombinasi dihidroartemisinin-piperakuin (DHP) dan minyak *Allium sativum* terhadap histopatologi *cytoadherence*

Metode: Studi Quasi Experimental ini menggunakan subjek mencit Swiss yang diinfeksi *P. berghei* ANKA. Dihidroartemisinin-piperakuin diberikan selama 3 hari dan minyak *Allium sativum* diberikan selama 6 hari. Dosis minyak *Allium sativum* disesuaikan dengan kelompok perlakuan. Jaringan otak diambil dan diwarnai dengan Hematoxylin Eosin dan derajat *cytoadherence* diukur dengan sistem skor.

Hasil: Terjadi penurunan derajat parasitemia paling besar pada kelompok II yang diterapi dihidroartemisinin-piperakuin. Pada kelompok I (tanpa terapi) parasitemia tidak mengalami penurunan, terjadi peningkatan dari hari ke hari. Penurunan parasitemia pada kelompok III (terapi DHP dan 303 mg/kgBB/hari minyak *A. sativum*), kelompok IV (terapi DHP dan 909 mg/kgBB/hari minyak *A. sativum*), dan kelompok V (terapi DHP dan 2727 mg/kgBB/hari minyak *A. sativum*) semakin besar sesuai kenaikan dosis minyak *Allium sativum*. Derajat *cytoadherence* juga menurun pada kelompok IV dan V.

Kesimpulan: Ada kecenderungan penurunan derajat *cytoadherence* pada kelompok yang diterapi dengan kombinasi dihidroartemisinin-piperakuin dibandingkan dengan kelompok yang hanya diterapi dengan dihidroartemisinin-piperakuin.

Kata Kunci: *cytoadherence*, minyak *Allium sativum*, *Plasmodium berghei*, malaria serebral, parasitemia

ABSTRACT

Background: One of *P. falciparum* infection complication is cerebral malaria that can cause neurological disturbance due to blockage of small blood vessels in the brain, and later will result in tissue hypoxia. *Allium sativum* oil has fibrinolytic, anti-inflammatory, anti-thrombotic, and anti-platelet activity and thus potentially reduce cytoadherence degree in patients with cerebral malaria.

Objective: to know the effect of dihydroartemisinin-piperazine and *Allium sativum* combination administration to cytoadherence histopathology

Method: This quasi experimental study uses Swiss mice that infected with *P. berghei* ANKA. Dihydroartemisinin-piperazine is given daily for 3 days and *Allium sativum* oil is given daily for 6 days. The dose of *Allium sativum* oil is adjusted to the treatment group. Brain tissue is taken and coloured with Hematoxylin Eosin, and the cytoadherence degree is measured using modified Sahbaz et al. scoring system.

Result: There is no decrease in parasitemia observed in treatment group I, on the contrary there was an increase observed day by day. The most significant decrease in parasitemia degree was observed in treatment group II that treated with dihydroartemisinin-piperazine, followed by group III (treated with DHP dan 303 mg/kgBB/day of *A. sativum* oil), IV (treated with DHP dan 909 mg/kgBB/day of *A. sativum* oil), and V (treated with DHP dan 2727 mg/kgBB/day of *A. sativum* oil). Cytoadherence degree was reduced in treatment group IV and V, compared to group II.

Conclusion: Cytoadherence degree tend to be lower in the group that treated with combination of dihydroartemisinin-piperazine and *Allium sativum* oil than the group that treated with dihydroartemisinin-piperazine only.

Keywords: cytoadherence, *Allium sativum* oil, *Plasmodium berghei*, cerebral malaria, parasitemia