Identifikasi akumulasi parasit malaria di limpa serta hubungannya dengan mekanisme penghindaran respon imun pada pasien splenektomi di Timika, Papua = Identification of malaria parasite accumulation in spleen and the relationship with the immune evasion in splenectomized patient in Timika, Papua / Labibah Qotrunnada

Labibah Qotrunnada, author

Abstrak

ABSTRAK
Jumlah parasitemia pada infeksi malaria yang ada di dalam darah perifer tidak mampu menunjukkan total biomassa parasit malaria. Total biomassa parasit malaria yang diukur dengan pemeriksaan antibodi histidine rich protein HRP dan Plasmodium lactate dehydrogenase pLDH menunjukkan bahwa biomassa parasit malaria lebih tinggi dibandingkan dengan parasitemia di darah perifer. Biomassa parasit malaria berhubungan dengan inflamasi sistemik dan tidak berhubungan dengan aktivasi endotel. Oleh karena itu, biomassa parasit malaria kemungkinan tidak terakumulasi di sel-sel endotel, melainkan di organ non endotel seperti limpa. Penelitian tentang malaria di limpa masih sangat jarang dilakukan, namun ada beberapa yang menunjukkan terdapat perbedaan arsitektur limpa yang terinfeksi oleh P. falciparum dan P. vivax. Perbedaan tersebut diduga karena perbedaan sel inang yang diinfeksi, yaitu eritrosit pada P. falciparum dan retikulosit pada P. vivax. Sebanyak 12 sampel limpa pasien splenektomi digunakan untuk membuktikan apakah limpa manusia merupakan reservoir parasit malaria dan terjadi penghindaran respons imun di limpa. Hasil penelitian menunjukkan bahwa semakin tinggi berat limpa pasien berhubungan dengan tingginya parasitemia, luas pulpa putih dan akumulasi parasit malaria. Akumulasi P. falciparum juga terjadi di limpa dengan tingginya parasitemia di limpa namun stadium hidup yang muda lebih banyak ditemukan di limpa. Hal tersebut berhubungan dengan mekanisme penghindaran respons imun dengan dugaan sekuestrasi di pembuluh darah sehingga menurunkan stadium matang di limpa. Mekanisme penghindaran pada stadium yang lebih muda juga dilakukan dengan cara membentuk rosetting. Akumulasi P. vivax di limpa tidak dapat dideskripsikan di penelitian ini karena jumlah sampel yang sedikit dengan parasitemia rendah. Namun penelitian ini mampu memprediksi kemungkinan akumulasi P. vivax di limpa dengan tingginya retikulosit di limpa.Kata kunci: Limpa, Malaria, P. falciparum, P. vivax, limpa, retikulosit.
<hr><i>ABSTRACT
The number of parasitemia in malaria infections from peripheral blood was not able to show the total parasite biomass. Total malaria parasite biomass as measured by histidine rich protein HRP and Plasmodium lactate dehydrogenase pLDH antibody test showed higher parasitic biomass than parasitemia in peripheral blood. Total parasite biomass was not correlated with endothelial activation. Therefore parasite biomass was possible to accumulate in non endothelial organ such as the spleen. Research on malaria in the spleen was still very limited, but there were some that showed the differences of splenic architecture in P. falciparum and P. vivax infection. The difference was due to the difference of infected host cell ie red blood cell in P. falciparum and reticulocyte in P. vivax. A total of 12 spleen from splenectomy patients were used to prove whether the human spleen is malaria parasite reservoir and the escaping immune response in the spleen. The results showed that the higher spleen weight was associated with high parasitemia, white pulp area, and

accumulation of malaria parasites. P. falciparum accumulation also occurs in the spleen with high parasitemia in the spleen but younger life stages are more common in the spleen. It is related to the mechanism of escaping the immune response with sequestration in the blood vessels thereby decreasing the mature stage in the spleen. The mechanism of escaping immune respons in the spleen at younger stages was also done by forming rosetting. The accumulation of P. vivax in the spleen can not be described in this study because of the limited number of samples with low parasitemia. However, this study was able to predict the possibility of P. vivax accumulation in the spleen with high reticulocytes in the spleen.Keywords Spleen, Malaria, P. falciparum, P. vivax, spleen, reticulocyte.</i>