

INTISARI

Latar belakang: Evaluasi transmisi malaria sangat penting dilakukan untuk mengetahui keberhasilan pengendalian malaria menuju tahap eliminasi malaria. Metode molekuler dan serologis lebih sensitif digunakan untuk penilaian tingkat transmisi. Penelitian ini bertujuan untuk menganalisa tingkat transmisi malaria melalui pengukuran prevalensi malaria dengan metode molekuler serta pengukuran seroprevalensi antibodi anti Etramp, GexP-18, PfSEA sebagai penanda paparan antigen *Plasmodium falciparum* berumur pendek; serta antibodi anti AMA-1, MSP-1 sebagai penanda paparan *Plasmodium falciparum* dan *Plasmodium vivax* berumur panjang.

Metode: Penelitian deskriptif dengan rancangan *cross sectional*, pada penduduk >1 tahun yang bertempat tinggal >6 bulan di Purworejo dengan teknik *cluster random sampling*. Wawancara menggunakan kuesioner diikuti pengambilan sampel darah intravena, kemudian diteteskan pada kertas Whatman, mengeringkannya dan simpan pada suhu -20°C. Membuat tetesan darah pada obyek glass kemudian mengfiksasi apusan darah tipis selanjutnya melakukan pewarnaan kedua apusan dengan Giemsa 5%. Mengisi tabung EDTA dengan darah kemudian sentrifuge dan simpan eritrosit pada suhu -20°C. Analisa univariat untuk mendeskripsikan hasil pemeriksaan molekuler dan mikroskopis; uji bivariat dan multivariat untuk mencari hubungan variabel sosio-demografik dan perilaku dengan paparan antigen malaria.

Hasil: secara molekuler 3(0,8%) sampel teridentifikasi *P.falciparum*, secara mikroskopis 2(0,5%) sampel teridentifikasi *P.falciparum* stadium *tropo*soit dan *gametosit* didesa Tepansari dengan pola kejadian kasus membentuk fokus/kelompok pada RT/RW 04/03 Dusun Genting Desa Tepansari. Secara serologis berturut-turut Desa Tepansari dan Kembaran: 28,2% dan 22,6% partisipan sementara atau baru saja terpapar antigen *Plasmodium falciparum* berumur pendek; 41,9% dan 30,1% pernah terpapar antigen *Plasmodium falciparum* berumur panjang; dan 44,8% dan 33,9% pernah terpapar antigen *Plasmodium vivax* berumur panjang. Secara statistik variabel umur, riwayat infeksi malaria sebelumnya berpengaruh terhadap paparan *Plasmodium falciparum* Tepansari dan Kembaran ($p < 0,05$). Paparan terhadap *Plasmodium vivax* didesa Tepansari dipengaruhi oleh umur, riwayat infeksi sebelumnya ($p < 0,05$) sedangkan Desa Kembaran dipengaruhi oleh umur, riwayat infeksi sebelumnya dan riwayat bepergian ke daerah endemis dan bermalam ($p < 0,05$).

Kesimpulan: Transmisi malaria didesa Tepansari lebih tinggi dari Desa Kembaran dibuktikan dengan tingginya prevalensi kasus malaria dan seroprevalensi antibodi anti malaria dibandingkan Desa Kembaran. Faktor umur, riwayat penyakit sebelumnya dan perilaku bepergian ke daerah endemis serta bermalam, menjadi faktor resiko untuk terpapar antigen malaria.

Keywords: transmisi malaria, malaria asimtomatis, serologis, seroprevalensi.

ABSTRACT

Background: Purworejo is one of previously high endemic malaria in Central Java, currently will struggling to achieve elimination. Measurement of the level of malaria transmission is very important to evaluate the success of malaria control programes. Molecular and serological methods are more sensitive to be used as compared to entomological methods. This study aims to analyzing the patern of short-lived and long-lived malaria antibody in the population of Tepansari and Kembaran, Purworejo.

Method: A descriptive analyzing of a *Cross sectional* study design was applied during collection of venous blood sample from over one year age population identified randomly in Tepansari and Kembaran Villages in Purworejo. EDTA containing tube were used during blood sample collection and erythrocyte pellete were separated from the plasma by centrifugation and stored in -20°C until to be further analyzed. Parasite DNA were extracted from the erythrocyte pellete for *Plasmodium* species identification and the presence of malaria antibodies in the plasma were measured using bead based illumination assay. Risk factors for malaria infection were collected using standardized questionnaire.

Results: As result of molecular method 3 (0.8%) samples identified as *P. falciparum*, Microscopically 2 (0.5%) sample identified as *gametocytes troposoit* stage of *P. falciparum* at Tepansari with the pattern of incidence cases formed the focus/group at RT / RW 04/03 Hamlet Genting Tepansari Village. Consecutively serological method identified: 28.2% and 22.6% of participants from Tepansari and Kembaran while or newly exposed to short-lived *Plasmodium falciparum* antigens; 41.9% and 30.1% had been exposed to long-lived *Plasmodium falciparum* antigens ; and 44.8% and 33.9% had been exposed to long-lived *Plasmodium vivax* antigens. Statistically the age variable, the history of malaria infection previously affected the exposure of *Plasmodium falciparum* at Tepansari and Kembaran ($p < 0.05$). Exposure to *Plasmodium vivax* in the Tepansari village was influenced by age, previous infection history ($p < 0.05$) while Kembaran Village was influenced by age, history of previous infection and history of traveling to endemic areas and overnight ($p < 0.05$).

Conclusion: Transmission of malaria in Tepansari village higher than Kembaran Village was proven by the high prevalence of malaria cases and anti-malaria antibody seroprevalence compared to Kembaran Village. Age factors, previous illness history and traveling behavior in endemic areas and overnight, are risk factors for exposure to malaria antigens.

Keywords: malaria transmission, asymptomatic malaria, serological, seroprevalence.