RESPON ANTIBODI TERHADAP MEROZOITE SURFACE PROTEIN-1 (MSP-1) DAN APICAL MEMBRANE ANTIGEN-1 (AMA-1) *Plasmodium vivax* PADA PENDUDUK DAERAH ENDEMIS RENDAH DAN ENDEMIS SEDANG DI INDONESIA

INTISARI

Latar Belakang. Malaria di Indonesia tersebar di hampir seluruh provinsi dengan endemitas dan transmisi yang bervariasi. Penelitian perlu dilakukan untuk mengetahui respon antibodi terhadap *Merozoite Surface Protein-1* (MSP-1) dan *Apical Membrane Antigen-1* (AMA-1) P*lasmodium vivax* pada penduduk daerah endemis rendah dan endemis sedang di Indonesia.

Metode. Pengukuran dilakukan terhadap sampel darah penduduk daerah endemis rendah (Purworejo) dan endemis sedang (Lampung). Pengukuran antibodi dilakukan dengan metode indirect ELISA dengan protein rekombinan MSP_{19} dan AMA-1 *P. vivax* sebagai agen penangkap. Sampel dinyatakan positif jika antibodi dengan titer diatas (rerata+3SD) nilai titer kelompok sampel individu negatif. Persentase seropositif, perbedaan rerata antibodi dan hubungan titer dengan usia individu dianalisis secara statistik.

Hasil. Seroprevalensi antibodi IgG anti *P.v.MSP-1* dan *P.v.AMA-1* pada berbagai kelompok usia penduduk di Purworejo lebih rendah dibanding dengan penduduk di Lampung, baik saat transmisi tinggi maupun saat transmisi rendah. Rerata titer antibodi IgG anti P.v. MSP-1 dan Pv. AMA-1 pada berbagai kelompok usia penduduk di daerah endemis rendah Purworejo dan daerah endemis sedang Lampung pada saat transmisi tinggi relatif sama dibanding pada saat transmisi rendah. Terdapat hubungan yang bermakna antara usia individu dengan titer IgG anti P.v.MSP-1 dan anti P.v.AMA-1 penduduk Purworejo dan Lampung saat transmisi tinggi dan saat transmisi rendah.

Kesimpulan. Respon antibodi anti P.v.MSP-1 dan anti P.v.AMA1 dapat berubah sesuai waktu transmisi. Pemeriksaan antibodi bisa menjadi indikator yang sensitif untuk menilai perubahan tersebut.

Kata kunci. Seroprevalensi, titer antibodi, transmisi malaria, P.v.MSP-1, P.v.AMA-1

Antibody Response Againts Plasmodium vivax Merozoite Surface Protein-1 (MSP-1) and Apical Membrane Antigen-1 (AMA-1) in Population from Low and Medium Endemic Malaria in Indonesia

ABSTRACT

Background. Malaria is distributed in almost all provices in Indonesia in differant levels of andemicity and transmission. In this study, antibody responses againts Plasmodium vivax MSP-1 and AMA-1 is measured in population living ini low and medium endemic area in Indonesia to evaluate the level on malaria endemicity in the region.

Methods. Serum antibody are measured from blood samples collected from people in low endemic area (Purworejo) and medium endemic area (Lampung) during high transmission season (November 2008-January 2009, and Desember 2008 - Februari 2009 in Lampung). And during low transmission season (May 2009-July 2009) in both region. Blood samples are grouped in age groups as 0-5, 6-10, 11-20, 21-30, 31-40, >41 years. Antibody titers is measured by indirect ELISA methd using recombinant P.v.MSP_{19} and P.v.AMA-1. Percentage of seropositive individuals from both region is analyzed with Chi Square, differences of mean antibody is analyzed with ANOVA, and significances corelation between antibody titers and age is analyzed with Pearson Correlation.

Result. During high and low transmission season, seroprevalence of antibody P.v.MSP-1 and P.v.AMA-1 antibodies in most group of age in Purworejo is lower than in Lampung. Both in Purworejo and Lampung mean antibody titers and correlation of antibody titer with age of anti P.v.MSP-1 and P.v.AMA-1 antibodies during low and high transmission season are different. Both in Purworejo and Lampung mean antibody titers and correlation of antibody titer shows significant differences.

Conclusion. Seasonal changes may be detectable by changes in antibody responses. Examination of antibody levels rather than seroprevalence is likely to be a more sensitive indicator of changes in transmission. These data suggest that sero-epidemiological analysis may have a role in assessing short-term changes in exposure.

Key words. Antibody titer, seroprevalence, transmission, P.v.MSP-1, P.v.AMA-1