Hubungan Infeksi Malaria dengan Anemia pada Anak Sekolah Dasar di Kabupaten Malaka, Nusa Tenggara Timur = Association between Malaria Infection and Anemia among Schoolchildren in Malaka District, Nusa Tenggara Timur

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Abstrak

Pendahuluan: Malaria masih menjadi permasalah kesehatan terutama di Indonesia bagian Timur. Di daerah endemis infeksi malaria dapat terjadi secara mikroskopik dan submikroskopik. Namun sejauh ini, penelitian mengenai relevansi klinis infeksi malaria terhadap anemia di daerah endemis belum banyak dilakukan. Penelitian ini bertujuan untuk meneliti hubungan antara infeksi malaria dengan anemia pada kelompok anak usia sekolah di provinsi Nusa Tenggara Timur.
Metode: Penelitian potong-lintang ini melibatkan subjek siswa sekolah dasar kelas I-V berusia 6-16 tahun dari beberapa sekolah dasar di kecamatan Wewiku Nusa Tenggara Timur. Infeksi malaria ditentukan berdasarkan pemeriksaan apus darah menggunakan Giemsa 3% dan RT-PCR. Kadar hemoglobin dinilai dengan alat HemoCue® Hb 201 portabel dan anemia ditentukan berdasarkan sistem klasifikasi WHO. Analisis hubungan antara infeksi malaria dan anemia dilakukan dengan uji Chi-square dan Mann-Whintey, sementara uji korelasi dilakukan dengan uji Spearman. Seluruh analisis data dilakukan dengan Statistical Package for Social Sciences (SPSS) for Windows versi 20.
Hasil: Sebanyak 348 anak sekolah dasar terlibat dalam penelitian ini. Proporsi infeksi malaria ditemukan sebesar 34,8% terdiri dari 18,4% infeksi submikroskopik dan 16,4% infeksi mikroskopik. Infeksi malaria yang terjadi didominasi oleh P.vivax (82,6%), diikuti oleh P.falciparum (15,7%), dan mixed infections (1,7%). Sementara itu, proporsi anemia ditemukan sebesar 55,2%, mayoritas anemia yang ditemukan termasuk ke dalam kategori ringan (>11 g/dL). Tidak ditemukan hubungan yang signifikan antara infeksi submikroskopik dengan anemia (OR=0,809, 95% CI [0,464-1,410], p=0,454). Akan tetapi, ditemukan korelasi negatif sedang yang signifikan antara densitas parasit infeksi mikroskopik P.vivax dengan anemia (r= -0,408, p=0,005). Analisis pada infeksi P.falciparum tidak dapat dilakukan karena jumlah sampel tidak mencukupi.
Simpulan: Anemia pada wilayah studi bukan disebabkan oleh infeksi submikroskopik. Namun, infeksi mikroskopik dapat menyebabkan penurunan kadar hemoglobin dan berpotensi menjadi kontributor terhadap anemia. Dengan demikian, diperlukan pemeriksaan kadar hemoglobin pada penderita malaria mikroskopik untuk mengantisipasi kejadian anemia.
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Introduction: Malaria is still a health problem, especially in eastern Indonesia. In endemic areas, malaria infection can occur microscopically and submicroscopically. However, there have not been many studies on the clinical relevance of malaria infection to anemia in endemic areas. This study aims to investigate the association between malaria infection and anemia in a group of school-age children in the province of East Nusa Tenggara.
Methods: This cross-sectional study involved the subjects of elementary school students from grade 1-4 aged 6-16 years from several elementary schools in Wewiku subdistrict, East Nusa Tenggara. Malaria

infection was determined based on blood smear examination using Giemsa 3% and RT-PCR. Hemoglobin levels were assessed using a portable HemoCue® Hb 201 device and anemia was determined according to the WHO classification system. Analysis of the relationship between malaria infection and anemia was performed using the Chi-square and Mann-Whintey tests, while the correlation test was analysed with Spearman test. All data analyzes were performed with the Statistical Package for Social Sciences (SPSS) for Windows version 20.
Results: A total of 348 elementary school children were involved in this study. The proportion of malaria infections was 34.8%, consisting of 18.4% submicroscopic infections and 16.4% microscopic infections. The malaria infections were dominated by P. vivax (82.6%), followed by P. falciparum (15.7%), and mixed infections (1.7%). Meanwhile, the proportion of anemia was found to be 55.2%, the majority of anemia was in the mild category (>11 g / dL). There was no significant association between submicroscopic infection and anemia (OR = 0.809, 95% CI [0.464-1.410], p = 0.454). However, there was a significant negative correlation between parasite density of microscopic P. vivax infection and anemia (r = -0.408, p = 0.005). Analysis of P. falciparum infection cannot be performed due to insufficient sample size.
Conclusion: Anemia in the study area was not caused by submicroscopic infection. However, microscopic infection can lead to decreased hemoglobin levels and can be a potential contributor to anemia. Thus, it is necessary to check hemoglobin levels in microscopic malaria patients to anticipate the incidence of anemia.