LITERATURE REVIEW: PENANGANAN AWAL KEGAWATDARURATAN MALARIA

Oleh
Leni Landudjama[1], Maria Kareri Hara[2], Ineke Noviana[3], Yosephina Elizabeth Sumartini Gunawan[4]
[1,2,3,4]Program Studi D3 Keperawatan Waingapu, Politeknik Kesehatan Kementerian Kesehatan Kupang, Indonesia
E-mail: [1]lenildj92@gmail.com, [2]mariakarerihara26@gmail.com, [3]novianaineke77@gmail.com, [4]bettyjang@gmail.com

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Abstract: Latar belakang: *Malaria merupakan suatu penyakit demam akut yang disebabkan oleh parasit plasmodium yang ditularkan ke manusia melalui gigitan nyamuk Anopheles betina yang terinfeksi. Pada tahun 2020 diperkirakan terdapat 241 juta kasus malaria di seluruh dunia. Perkiraan jumlah kematian akibat malaria mencapai 627.000 pada tahun 2020. Kasus malaria di Indonesia pada tahun 2020 kasus positif sebanyak 235,7 ribu. Tahun 2020 masih ada 23 kabupaten/kota yang endemis malarianya masih tinggi, 21 kabupaten/kota endemis sedang, dan 152 kabupaten/kota endemis rendah. Kabupaten endemis tinggi malaria masih terkonsentrasi di Pulau Sumba. Manajemen kegawatdaruratan yang tepat pada pasien dalam penanganan awal tidak hanya menurunkan mortalitas atau morbiditasnya tetapi dapat menurunkan biaya perawatan dan lama perawatan di rumah sakit. Penanganan awal kegawatdaruratan malaria penting dilakukan supaya tidak terjadi komplikasi yang mempengaruhi berbagai sistem tubuh.* ***Tujuan:*** *penelitian ini bertujuan untuk mengidentifikasi penanganan awal kegawatdaruratan malaria.* ***Metode:*** *Jenis penelitian ini adalah literature review yang berisi tentang uraian temuan hasil penelitian orang lain. Penelusuran literature dalam penelitian ini mengunakan database Google Scholar, ScinceDirect, PubMed, dan Proquest dengan kata kunci 'initial handling of malaria emergencies'. Selanjutnya artikel yang didapatkan dilakukan screening berdasarkan kriteria inklusi yaitu jurnal diterbitkan dalam rentang 5 tahun terakhir, tipe jurnal original artikel dengan metode penelitian kuantitatif dan kualitatif, jurnal dapat diakses secara penuh melalui file pdf full text, artikel yang di ambil adalah artikel jurnal nasional dan internasional.* ***Hasil:*** *penanganan awal kegawatdaruratan malaria yaitu pendekatan yang komprehensif, diagnosis cepat, penerapan intervensi tepat waktu dan tepat guna, terapi efektif, dan pencegahan komplikasi dengan metode diagnosis cepat malaria, tes antigen, tes PCR,RDTs, SBET, penerapan terapi ACT,*

pengobatan melalui intravenous artesunate, dan resusitasi simptomatik menjadi standar dalam penanganan kegawadaruratan malaria. ***Kesimpulan:*** *penerapan ketepatan penanganan awal kegawatdaruratan malaria sesuai pedoman penatalaksanaan malaria perlu ditingkatkan agar terjadi penurunan angka mortalitas maupun morbiditas penyakit malaria sehingga upaya global dalam eliminasi malaria tercapai*

PENDAHULUAN

Malaria merupakan penyakit demam akut yang mengancam jiwa terutama ditemukan di daerah tropis dengan endemik malaria dan penyakit ini disebabkan oleh parasit plasmodium yang ditularkan ke manusia melalui gigitan nyamuk Anopheles betina yang terinfeksi. Penyakit ini dapat dicegah dan disembuhkan. Namun, tanpa diagnosis yang cepat dan pengobatan yang efektif, kasus malaria tanpa komplikasi dapat berkembang menjadi bentuk penyakit yang parah, yang seringkali berakibat fatal tanpa pengobatan. Lima spesies parasit dapat menyebabkan malaria pada manusia yaitu Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale, Plasmodium malariae, dan Plasmodium knowlesi. Terdapat 2 dari spesies ini – Plasmodium falciparum dan Plasmodium vivax – menimbulkan ancaman terbesar. Ada lebih dari 400 spesies nyamuk Anopheles yang berbeda dan sekitar 40, yang dikenal sebagai spesies vektor, dapat menularkan penyakit ini. Risiko infeksi ini lebih tinggi di beberapa daerah dibandingkan daerah lain tergantung pada beberapa faktor, termasuk jenis nyamuk lokal. Risiko ini juga dapat bervariasi menurut musim, risiko tertinggi terjadi selama musim hujan di negara-negara tropis. Gejala pertama demam, sakit kepala dan kedinginan muncul 10-15 hari setelah gigitan nyamuk yang infektif dan mungkin ringan dan sulit dikenali sebagai malaria (1,2).

Pada tahun 2020 diperkirakan terdapat 241 juta kasus malaria di seluruh dunia. Perkiraan jumlah kematian akibat malaria mencapai 627.000 pada tahun 2020. (1). Kasus malaria di Indonesia pada tahun 2020 sebanyak 235,7 ribu. Kabupaten endemis tinggi malaria di Nusa Tenggara Timur (NTT) masih terkonsentrasi di Pulau Sumba. Penemuan kasus malaria di NTT sebagian besar atau 84% menggunakan mikroskop, sedangkan 14% menggunakan Rapid Diagnostic Test (RDT) (3).

Kasus malaria terus berkembang di beberapa daerah endemis malaria didunia maupun secara nasional di Indonesia sehingga dalam proses eliminasi maupun penanganan awal penyakit malaria sangat diperlukan demi peningkatan kesehatan masyarakat (3,4). Penanganan awal kegawatdaruratan dilakukan dengan cara tepat, cermat, dan cepat. Mortalitas pasien dengan berbagai kondisi masih tinggi terutama di negara berkembang dan hal tersebut dipengaruhi faktor usia, kondisi klinis pasien saat tiba di IGD, dan manajemen terapi yang diberikan. Manajemen kegawatdaruratan yang tepat pada pasien dalam penanganan awal tidak hanya menurunkan mortalitas atau morbiditasnya tetapi dapat menurunkan biaya perawatan dan lama perawatan di rumah sakit. Penanganan awal kegawatdaruratan malaria penting dilakukan supaya tidak terjadi komplikasi yang mempengaruhi berbagai sistem tubuh sehingga menyebabkan perubahan pada konsentrasi hemoglobin dan hematocrit akibat parasite malaria tidak segera teridentifikasi dan terlambat dalam pemberian perawatan pada pasien (5). Jika teridentifikasi malaria

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Plasmodium falciparum dan tidak diobati, maka dapat berkembang menjadi penyakit parah dan mengalami kematian dalam waktu 24 jam. Apabila terjadi penanganan yang tidak tepat akan menyebabkan kematian atau kecacatan pada pasien (6). Oleh karena itu penting penerapan ketepatan penganagan aawal pada kasus malaria sehingga dapat tertangani dengan baik dan tepat. Berdasarkan uraian tersebut, maka tujuan dari penelitian ini adalah untuk mengidentifikasi dan mengetahu penanganan awal kegawatdaruratan malaria.

LANDASAN TEORI

Kasus Malaria

Pada tahun 2020 diperkirakan terdapat 241 juta kasus malaria di seluruh dunia. Perkiraan jumlah kematian akibat malaria mencapai 627.000 pada tahun 2020. Pada tahun 2020, wilayah Afrika menjadi salah satu negara dengan beban kasus malaria global sangat tinggi yaitu sebanyak 95% kasus malaria dan 96% kematian akibat malaria. Anak-anak di bawah 5 tahun menyumbang sekitar 80% dari semua kematian akibat malaria di wilayah tersebut. Empat negara Afrika menyumbang lebih dari setengah dari semua kematian akibat malaria di seluruh dunia: Nigeria (31,9%), Republik Demokratik Kongo (13,2%), Republik Tanzania (4,1%) dan Mozambik (3,8%) (1). Kasus malaria di Indonesia pada 2010 kasus positif malaria mencapai 465,7 ribu, sementara pada 2020 kasus positif menurun menjadi 235,7 ribu. Tahun 2020 masih ada 23 kabupaten/kota yang endemis malarianya masih tinggi, 21 kabupaten/kota endemis sedang, dan 152 kabupaten/kota endemis rendah. Terdapat 14 kabupaten/kota di NTT dengan endemis rendah, 2 kabupaten/kota endemis sedang, dan 3 kabupaten/kota endemis tinggi. Kabupaten endemis tinggi malaria masih terkonsentrasi di Pulau Sumba. Penemuan kasus malaria di NTT sebagian besar atau 84% menggunakan mikroskop, sedangkan 14% menggunakan Rapid Diagnostic Test (RDT) (3).

Penanganan Awal Kegawatdaruratan Malaria

Penanganan awal kasus kegawatdaruratan memerlukan pemahaman fisiologi, patofisiologi yang baik, dan bukti terkini dalam pemilihan modalitas terapi untuk melakukan penantalaksanaan awal sesuai dengan kegawatdaruratan kasus malaria. Kasus kegawatdaruratan harus segera mendapatkan penanganan secara tepat, cermat, dan cepat. Apabila terjadi penanganan yang tidak tepat akan menyebabkan kematian atau kecacatan pada pasien. Angka kematian pasien dengan berbagai kondisi di Instalasi Gawat Darurat (IGD) terutama di negara berkembang masih tinggi. Mortalitas pasien yang dirawat di IGD dipengaruhi faktor usia, kondisi klinis pasien saat tiba di IGD, dan manajemen terapi yang diberikan. Manajemen kegawatdaruratan yang tepat pada pasien dalam penanganan awal tidak hanya menurunkan mortalitas atau morbiditasnya tetapi dapat menurunkan biaya perawatan dan lama perawatan di rumah sakit. Penanganan awal kegawatdaruratan malaria penting dilakukan supaya tidak terjadi komplikasi yang mempengaruhi berbagai sistem tubuh sehingga menyebabkan perubahan pada konsentrasi hemoglobin dan hematocrit karena parasite malaria tidak segera teridentifikasi dan terlambat dalam pemberian perawatan pada pasien (5).

METODE PENELITIAN

Jenis penelitian ini adalah literature review yang berisi tentang uraian temuan hasil penelitian orang lain. Tujuan jenis penelitian *literature review* adalah untuk mendapatkan

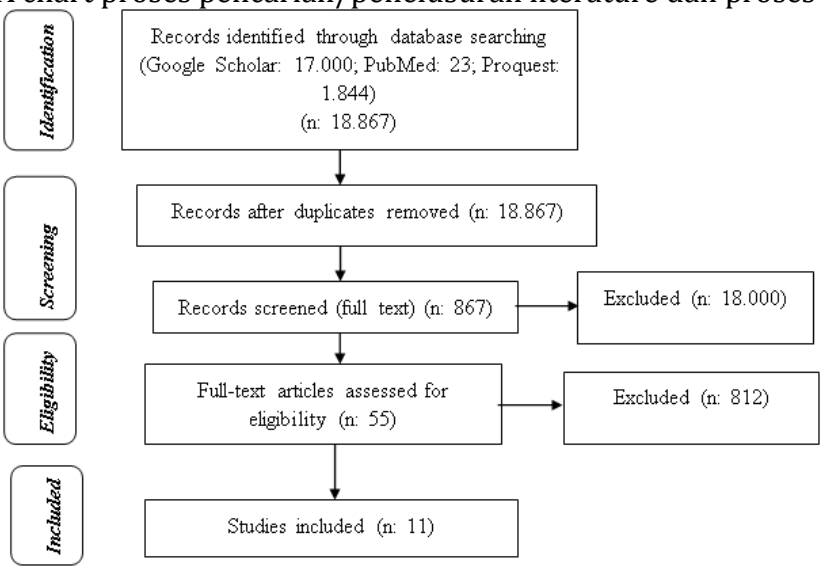
uraian teori hasil penelitian orang lain yang dapat mendukung pemecahan masalah yang sedang di teliti tentang penanagana awal kegawatdaruratan malaria. Tahapan dalam penelitian ini adalah identifikasi masalah penelitian yaitu penanganan awal kegawatdaruratan malaria. Setelah itu dilakukan penelusuran literature mengunakan database Google Scholar, PubMed, dan Proquest dengan kata kunci 'Initial management of malaria emergencies'. Selanjutnya artikel yang didapatkan dilakukan screening berdasarkan kriteria inklusi yaitu jurnal diterbitkan dalam rentang tahun 2016-2020, tipe jurnal original artikel dengan metode penelitian kuantitatif dan kualitatif, jurnal dapat diakses secara penuh melalui file pdf full text, artikel yang di ambil adalah artikel jurnal nasional dan internasional (hasil screening ini tergambar dalam PRISMA chart). Setelah itu di review dengan menulis kembali isi berdasarkan sumbernya dengan kalimat yang mudah dipahami oleh penulis dan dilakukan analisis data.

Analisa Data (PICO)

Tabel 1. PICO Worksheet

P (Problem)	Malaria
I (Intervention)	Penanganan awal kegawatdaruratan malaria
C (Comparation)	-
O (Outcome)	Teridentifikasi penanganan awal kegawatdaruratan malaria
Clinical Question	Bagaimana Penanganan Awal Kegawatdaruratan Malaria?
Keywords	Penanganan awal, kegawatdaruratan, malaria (Initial management of malaria emergencies)
Database	Google Scholar, PubMed, Proquest
Time	2016-2020

PRISMA chart proses pencarian/penelusuran literature dan proses seleksi



Gambar 1. Penanganan awal kegawatdaruratan malaria

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HASIL DAN PEMBAHASAN

Hasil

Tabel 1. Matriks Analisis Artikel

No	Judul, Penulis & Tahun	Hasil Temuan
1	Management of severe imported malaria in adults, (7)	Severe malaria accounts for approximately 10% of all cases of imported malaria in France; cases are mainly due to Plasmodium falciparum, while other Plasmodium species are possible but uncommon (P. vivax, P. knowlesi, P. malariae, and P. ovale). On the basis of WHO criteria for endemic areas, the French criteria defining severe imported malaria in adults have been progressively adapted to the European healthcare level. Management of severe imported malaria is a diagnostic and treatment emergency and must be initially conducted in the intensive care unit. Anti-infective treatment is now based on intravenous artesunate, which must be available in every hospital of the country likely to receive severe imported malaria patients. Intravenous quinine is thus used as a second-line treatment and is restricted to limited indications. Critical care management of organ failure is essential, particularly in patients presenting with very severe malaria. To date, no adjunctive therapy (including exchange transfusion) has demonstrated clear beneficial effects. Imported malaria cases are still being reported in France. All physicians must be aware of this infection and must know that it represents a diagnostic and treatment emergency. Severe imported malaria must be treated with intravenous artesunate as it is always superior to quinine. Symptomatic resuscitation is fundamental especially for the most severe presentations. The case fatality of imported malaria will only be reduced by improving all components of the management
2	Management and prevention of imported malaria in children. Update of the French guidelines (8)	Since the 2007 French guidelines on imported Falciparum malaria, the epidemiology, treatment, and prevention of malaria have changed considerably requiring guidelines for all Plasmodium species to be updated. Over the past decade, the incidence of imported malaria has decreased in all age groups, reflecting the decrease in the incidence of malaria in endemic areas. The rates of severe pediatric cases have increased as in adults, but fatalities are rare. The parasitological diagnosis requires a thick blood smear (or a rapid immunochromatographic test) and a thin blood film.

		Alternatively, a rapid antigen detection test can be paired with a thin blood film. Thrombocytopenia in children presenting with fever is highly predictive of malaria following travel to a malaria-endemic area and, when detected, malaria should be strongly considered. The first-line treatment of uncomplicated P. falciparum malaria is now an artemisinin-based combination therapy (ACT), either artemether-lumefantrine or artenimol- piperaquine, as recommended by the World Health Organization in endemic areas. Uncomplicated presentations of non-falciparum malaria should be treated either with chloroquine or ACT. The first-line treatment of severe malaria is now intravenous artesunate which is more effective than quinine in endemic areas. Quinine is restricted to cases where artesunate is contraindicated or unavailable. Prevention of malaria in pediatric travelers consists of nocturnal personal protection against mosquitoes (especially insecticide-treated nets) combined with chemoprophylaxis according to the risk level. Extensive data has been published on malaria over the past 10 years. This article aimed to update guidelines on the mana- gement and prevention of pediatric imported malaria.
3	Establishing research priorities for malaria elimination in the context of the emergency response to artemisinin resistance framework-the Cambodian approach (9)	Results: OR priorities produced by the thematic groups were discussed in the plenary meeting and given a priority score by group voting. A list of 17 OR questions were developed, finalized and listed, which included questions on surveillance, active case detection and treatment efficacy. Conclusion: This paper describes ERAR's work on supporting Cambodia's transition to malaria elimination by identi- fying national operational research priorities. ERAR has initiated and currently plays a critical role in the development of country specific research agendas for malaria elimination. The first example of this has been the described exercise in Cambodia, which could serve a template for setting OR priorities in the wider region.
4	Malaria case management by community health workers in the Central African Republic from 2009–2014: overcoming challenges of access	Results: Among nearly 200,000 people who consulted a CHW during this period, 81% were found to be positive for malaria parasites by RDT. In total, 98.9% of these positive cases were appropriately treated with artemisinin-based combination therapy (ACT). Only 1.2% of RDT negative cases were incorrectly treated with an ACT. Monthly data from each CHW were regularly reported, with more than 96% of CHWs reporting each month in the first 3 years of

	and instability due to conflict (10)	the project. However, since the coup d'état in March 2013, the number of CHWs reporting each month decreased as the programme battled the additional constraints of civil war. Conclusions: Although the political crisis affected the CHWs, the programme showed that it could reach those most vulnerable and continue some level of care at all times. In addition, this programme revealed that surveillance could be maintained in conflict zones. This paper fills a significant gap in the knowledge of malaria control in CAR and this is especially important for agencies which must often decide in a short space of time how to respond effectively to complex emergencies.
5	Stand-by emergency treatment (SBET) of malaria in Spanish travellers: a cohort study (11)	Results: In the study period, of 5436 subjects who attended the HUB Travel Medicine Clinic, 145 travellers to malaria-endemic areas were prescribed SBET, and all patients agreed to participate in the study by completing the pre-travel questionnaire. Approximately half the participants were women (n = 75, 51.7%), and the median age of all travellers was 29 years (range 13–57), mainly travelling to South-East Asia (n = 69, 47.6%), with Indonesia and the Philippines as the most popular destinations. The length of travels had a median duration of 29 days (range 10–213). Of the recruited participants, 98 replied to the online post-travel survey, reaching a response rate of 67.6%. A total of 62.2% of travellers to which SBET was prescribed did not buy and carry drugs while travelling abroad. No participants' baseline or travel characteristic was shown to be significantly associated (p > 0.05) with this behaviour. Four women (4.1%) experienced fever and self-administered SBET, without seeking medical attention. No malaria cases were observed. Conclusions: This cohort study addressed travellers' adherence and behaviour toward SBET, highlighting an incorrect use of the emergency treatment in case of presumptive malaria symptoms. This should be taken into account during pre-travel consultation, since the success of this strategy for malaria prevention depends on travellers' strong adher-ence to it.
6	Adherence to Ebola-specific malaria case management guidelines at health facilities in Guinea during the West	Results: Most (78%) facilities reported availability of examination gloves, but adequate PPE was available at only 27% of facilities. Only 28% of febrile patients received correct malaria case management per the WHO temporary malaria case management guidelines. The most common error was diagnostic testing in the absence of adequate PPE

	African Ebola epidemic (12)	(45% of febrile patients), followed by no presumptive treatment in the absence of adequate PPE (14%). Having had a report of an EVD case at a health facility and health worker-reported participation in EVD-specific malaria trainings were associated with lower odds of diagnostic testing and higher odds of presumptive treatment. Conclusions: Adherence to guidance on malaria case management in EVD-affected countries was low at the height of the EVD epidemic in Guinea, and there was substantial malaria diagnostic testing in the absence of adequate PPE, which could have contributed to increased EVD transmission in the healthcare setting. Conversely, low presumptive treatment when diagnostic tests were not performed may have led to additional morbidity and mortality among malaria positive patients. National malaria control programs may consider preparing contingency plans for future implementation of temporary changes to malaria case management guidelines to facilitate uptake by health workers.
7	Integrated fever management: disease severity markers to triage children with malaria and non-malarial febrile illness (13)	Febrile symptoms in children are a leading cause of health-care seeking behaviour worldwide. The majority of febrile illnesses are uncomplicated and self-limited, without the need for referral or hospital admission. However, current diagnostic tools are unable to identify which febrile children have self-limited infection and which children are at risk of progressing to life-threatening infections, such as severe malaria. This paper describes the need for a simple community-based tool that can improve the early recognition and triage of febrile children, with either malarial or non-malarial illness, at risk of critical illness. The integration of a disease severity marker into existing malaria rapid diagnostic tests (RDT) could enable detection of children at risk of severe infection in the hospital and community, irrespective of aetiology. Incorporation of a disease severity marker could inform individualized management and early triage of children at risk of life-threatening infection. A child positive for both malaria and a disease severity marker could be prioritized for urgent referral/admission and parenteral therapy. A child positive for malaria and nega- tive for a disease severity marker could be managed conservatively, as an out-patient, with oral anti-malarial therapy. An RDT with a disease severity marker could facilitate an integrated community-based approach to fever syndromes and

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		improve early recognition, risk stratification, and prompt treatment of severe malaria and other life-threatening infections. The majority of febrile illness in children under the age of five is self-limited and, once malaria and critical illness are excluded, can be managed conservatively. The cur- rent inability to rapidly identify the small proportion of children who are at risk of progressing to life-threatening infection is a major obstacle to management of fever syn- dromes, rational antimicrobial use and effective health resource allocation. This paper proposes the incorpora- tion of disease severity markers into existing RDTs as an approach to enable early recognition, risk stratifica- tion, and prompt treatment of severe malaria and other life-threatening infections. While additional studies are needed, this strategy could enhance triage, improve case management, resource allocation, and ultimately health outcomes for children presenting with both malarial and non-malarial febrile illness in hospital and community- based settings.
8	Malaria case management and elimination readiness in health facilities of five districts of Madagascar in 2018 (14)	Results: A quarter of the 35 HFs surveyed had no rapid diagnostic tests (RDTs). Of 129 patients with reported or recorded fever among 300 consultations observed, HPs tested 56 (43%) for malaria. Three-quarters of the 35 HF man- agers reviewed data for trends. Only 68% of 41 HPs reported receiving malaria-specific training. Of 34 CHVs surveyed, 24% reported that treating fever was no longer among their responsibilities. Among treating CHVs, 13 (50%) reported having RDTs, and 11 (42%) had anti-malarials available. The average district elimination readiness score was 52 out of 100, ranging from 48 to 57 across districts. Stakeholders identified several challenges to commodity management, malaria CM, and epidemic response related to lack of training and funding disruptions. Conclusion: This evaluation highlighted gaps in malaria CM and elimination readiness in Madagascar to address dur- ing elimination planning. Strategies are needed that include training, commodity provision, supervision, and support for CHVs. The MERA can be repeated to assess progress in filling identified gaps and is a feasible tool that could be used to assess elimination targets in other countries.
9	Profile and outcomes of patients with acute complications of	Results: We screened 405 patients which physicians had a clinical suspicion or diagnosis of malaria at ED. We enrolled 184 (45.5%) patients meeting WHO clinical and laboratory

	malaria presenting to an urban emergency department of a tertiary hospital in Tanzania (15)	definition of malaria. The median age was 22 years (interquartile range 22–33 years), 105 (57%) were male, and overall 124 (67.4%) were self-referral. The use of insecticide treated nets (ITNs) in this group was 125 (67.4%). Fever 125 (67.9%), headache 56 (30.4%) and general body malaise 41 (22.2%) were the top three frequent complains, while tachycardia 83 (42.9%) was the most frequent abnormal vital sign. Overall, 21 (11.4%) patients had severe anaemia and 21 (11.4%) had abnormal renal function test. In ED 121/184 (65.8%) patients received antimalarial, 74/184 (40.2%) received antibiotics, 6/184 (3.3%) received antipyretic/analgesic and 5/20 (25%) patients with severe anaemia received blood transfusion. Overall, 99/184 (53.8%) patients were hospitalized, 3 (1.6%) died at the ED, and the overall hospital morality was 3.8%. Overall we found a substantial burden of patients with complications of malaria presenting in the largest public ED in Tanzania.
10	Management of Travel-Related Infectious Diseases in the Emergency Department (16)	Recent Findings In the treatment oftraveler's diarrhea, azithromycin has become the treatment ofchoice due to the growing antibiotic resistance. Intravenous artesunate was approved in 2019 under investigational new drug protocol for the treatment of severe malaria, and artemisinin-based combination therapies (ACTs) have become the first-line treatment for most cases of uncomplicated malaria. Since the 2015 outbreak, Zika has become a concern to many travelers, but the current treatment is supportive. Summary Clinicians should be aware ofa few noteworthy updates in the treatment ofinternationally acquired illnesses, but more importantly, they must recognize warning signs ofsevere illness and treat promptly. Future research on workup and disposition could help emergency physicians identify which patients need admission in well-appearing febrile travelers. The differential diagnosis in a febrile international traveler is broad, and in many cases, definitive diagnosis will not be made in the ED. In addition, while the CDC and WHO have useful guidelines for diagnosis and management, these tests and treatment might not be available in the emergency depart- ment. Therefore, one must be aware of alternative treatments particularly for severely ill patients. In an otherwise undiffer- entiated febrile traveler, basic labs can be drawn to narrow the differential and screen for

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		risk of development of severe disease. Recognition ofdevelopment ofsevere disease is crit- ical as these patients have high risk of complications and death.
11	Malaria standby emergency treatment (SBET) for travellers visiting malaria endemic areas: a systematic review and meta-analysis (17)	Results: A total of 11 studies were eligible for inclusion among the 1027 titles identified by our search. The studies included 7/11 prospective cohort studies that recruited pre-travel clinic attendees in Europe and 4/11 cross-sectional studies, of which 3 recruited travellers at airports before their return home from Southeast Asia and Africa and 1 from an employee registry including long-term travellers. The overall pooled prevalence of SBET use among the 26 403 travellers was 2.5% (95% confidence interval, 1.1–4.3%; range, 0.4–10.8%). There was significant variation in the proportion of travellers carrying SBET medication (40–100%), the proportion of travellers with appropriate response to fever (23–100%), adverse events (0–33%) and incorrect dosage/duration of SBET (0–100%). Conclusion: Adherence to the proposed recommendations for SBET use, notably the response to fever, was poor. If the use of SBET is to be pursued, modifications to the current SBET strategy should be considered, such as better selection of travellers at higher risk for malaria and the potential addition of mRDTs.

Pembahasan

Berdasarkan hasil dalam tabel analisis jurnal didapatkan hasil bahwa penanganan awal kegawatdaruratan malaria yaitu dengan metode diagnosis cepat malaria telah terbukti efektif dalam penanganan awal kegawatdaruratan malaria, termasuk tes antigen, tes PCR (*Polymerase Chain Reaction*), *Rapid Diagnostic Tests* (RDTs), dan *Stand-by emergency treatment* (SBET) (11,13,14,17). Adapun penerapan terapi *Artemisinin-Based Combination Therapy* (ACT) tetap menjadi standar dalam penanganan malaria, termasuk dalam kasus kegawatdaruratan (8,10,16). Penatalaksanaan perawatan kritis untuk kegagalan organ sangat penting, terutama pada pasien yang mengalami malaria berat atau komplikasi malaria. Infeksi malaria berat merupakan keadaan darurat berdasarkan hasil diagnostik sehingga pengobatan.harus diobati dengan intravenous artesunate karena selalu lebih baik daripada kina. Resusitasi simptomatik sangat penting terutama untuk kasus yang paling parah. Prevalensi mortaliats dari penderita malaria hanya dapat dikurangi dengan meningkatkan semua komponen manajemen penanganannya (7,8,15). Sebaliknya, pengobatan dugaan yang rendah ketika tes diagnostik tidak dilakukan dapat menyebabkan morbiditas dan mortalitas tambahan di antara pasien malaria positif. Program pengendalian malaria nasional dapat mempertimbangkan persiapan rencana darurat untuk penerapan perubahan sementara pada pedoman manajemen kasus malaria di masa mendatang untuk memfasilitasi penerapannya oleh petugas kesehatan (12).

Penanganan awal kegawatdaruratan malaria membutuhkan pendekatan yang

komprehensif, termasuk tes diagnosis cepat, terapi efektif, dan pencegahan komplikasi resusitasi simptomatik. Jadi,pemeriksaan diagnostik dan intervensi yang tepat waktu dan tepat guna dapat mengurangi tingkat mortalitas dan morbiditas akibat malaria dan meningkatkan prognosis pasien. Pencegahan komplikasi seperti anemia dan sindrom hemolitik uremik juga merupakan bagian penting dari penanganan awal kegawatdaruratan malaria.

Upayan penanaganan awal malaria dengan meningkatkan aksesibilitas tes diagnosis cepat malaria di wilayah-wilayah endemis, memastikan ketersediaan terapi *Artemisinin-Based Combination Therapy* (ACT) dan intravenous artesunate (18) yang memadai di fasilitas kesehatan tingkat pertama, kapasitas tes diagnostik yang memadai dan penguatan fasilitas layanan primer (19), melakukan pemantauan terhadap kejadian komplikasi dan penerapan intervensi pencegahan secara proaktif. Penting untuk mengenali gejala malaria, yang dapat termasuk demam tinggi, menggigil, sakit kepala parah, mual, muntah, nyeri otot, dan kelelahan yang parah. Pada kasus yang lebih parah atau malaria berat, gejala penyerta dapat berkembang menjadi kejang, kesadaran menurun, atau masalah pernapasan, gagal ginjal, hipoglikemia dan lainnya (20,21). Diagnosis malaria biasanya dikonfirmasi melalui pemeriksaan darah untuk mendeteksi adanya parasit malaria di dalam darah. Pemberian Obat Antimalaria: Setelah diagnosis dikonfirmasi, pengobatan segera perlu diberikan. Obat-obatan antimalaria seperti *Artemisinin-Based Combination Therapies* (ACTs) adalah standar pengobatan yang disarankan oleh Organisasi Kesehatan Dunia (WHO) untuk mengobati infeksi malaria yang disebabkan oleh Plasmodium falciparum, yang merupakan jenis malaria yang paling mematikan (22).

Selain pengobatan antimalaria, manajemen gejala juga penting. Ini dapat mencakup pemberian antipiretik (obat penurun demam) untuk mengurangi demam dan nyeri, cairan intravena untuk mencegah dehidrasi, dan pengobatan pendukung lainnya sesuai kebutuhan (23). Pasien dengan malaria parah atau dengan komplikasi lainnya perlu dipantau secara ketat di fasilitas kesehatan untuk memastikan respons terhadap pengobatan dan untuk mengidentifikasi dan mengatasi komplikasi yang mungkin timbul. Setelah pasien pulih dari malaria, penting untuk memberikan pendidikan kesehatan tentang upaya pencegahan malaria melalui kegiatan pemberantasan sarang nyamuk (PSN) dan penerapan gerkakkan 3M Plus (24), serta langkah-langkah pencegahan kepada masyarakat untuk mencegah infeksi berulang, seperti penggunaan kelambu berinsektisida, penggunaan obat antimalaria profilaksis jika perlu, dan pemberantasan nyamuk. Upaya pengendalian vektor, seperti penggunaan insektisida dan pengendalian lingkungan untuk mengurangi populasi nyamuk pembawa malaria, juga merupakan bagian penting dari strategi pencegahan dan pengendalian malaria. Setiap kasus malaria perlu dilaporkan kepada otoritas kesehatan setempat, dan upaya penelusuran kontak harus dilakukan untuk mencegah penyebaran infeksi lebih lanjut.

Implikasi dari penelitian ini adalah peningkatan pengetahuan tentang upaya penanganan awal pada kasus malaria khsususnya penanganan awal kegawatdaruratan malaria. Keterbatasan penelitian ini adalah peneliti hanya menaganalisis beberapa artikel jurnal terkait sesuai topik dalam penelitian ini sehingga cakupan analisisnya sedikit dan perlu peningkatan penelitian lebih lanjut ke tahap sistematik review dan meta-analisis tentang penanaganan awal kegawatdaruratan malaria.

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KESIMPULAN

Penelitian ini disimpulkan bahwa penanganan awal kegawatdaruratan malaria yaitu pendekatan yang komprehensif, diagnosis cepat, penerapan intervensi tepat waktu dan tepat guna, terapi efektif, dan pencegahan komplikasi dengan metode diagnosis cepat malaria, tes antigen, tes PCR (*Polymerase Chain Reaction*), *Rapid Diagnostic Tests* (RDTs), dan *Stand-by emergency treatment* (SBET), penerapan terapi *Artemisinin-Based Combination Therapy* (ACT), pengobatan melalui intravenous artesunate, dan Resusitasi simptomatik menjadi standar dalam penanganan kegawadaruratan malaria.

SARAN

Diharapkan individu maupun masyarakat bekerjasama dengan tenaga kesehatan untuk melakukan upaya pengendalian vector malaria, mengenal gejala khas malaria, melakukan deteksi dini dan penerapan intervensi yang cepat dan tepat oleh tenaga kesehatan sesuai dengan standar pedoman penatalaksanaan penyakit malaria dalam penerapan penanganan awal penyakit malaria maupun penanganan awal kegawatadaruratan malaria. Bagi peneliti selanjutnya agar meneliti tentang analisis faktor yang mempengaruhi penanganan awal kegawatdaruratan malaria.

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DAFTAR PUSTAKA

[1] World Health Organization. Malaria. In 2021. Available from: https://www.who.int/news-room/fact-sheets/detail/malaria
[2] World Health Organization. Malaria [Internet]. 2024. Available from: https://www.who.int/news-room/questions-and-answers/item/malaria?gad_source=1&gclid=Cj0KCQjwgrO4BhC2ARIsAKQ7zUn2LgJEvpyF61bw1mbyrBScNtKb5LXzfrWGcLtfgWAk15wvu9s7WbYaAqrIEALw_wcB
[3] Kemkes P. Kasus Malaria di Indonesia Menurun, NTT Jadi Provinsi Pertama di Kawasan Timur Berhasil Eliminasi Malaria. In 2021. Available from: http://p2p.kemkes.go.id/kasus-malaria-di-indonesia-menurun-ntt-jadi-provinsi-pertama-di-kawasan-timur-berhasil-eliminasi-malaria/
[4] Yayank Lewinsca M, Raharjo M, Magister Kesehatan Lingkungan Fakultas Kesehatan Masyarakat Universitas Diponegoro N, Dosen Magister Kesehatan Lingkungan Fakultas Kesehatan S. Faktor Risiko yang Mempengaruhi Kejadian Malaria Di Indonesia : Review Literatur 2016-2020 Risk Factors Affecting the Incidence of Malaria in Indonesia: A Literature Review 2016-2020. J Kesehat Lingkung. 2021;11(1):16–28.
[5] Alshamsi J, Kasim Z, Othman I, shadan A, Hussain H, Ujra A, et al. Clinical-Epidemiological Study of Imported Malaria in Dubai 2017-2018. Microbiol Infect Dis. 2020;4(1):2–6.
[6] Kemenkes RI. Profil Kesehatan Indonesia Tahun 2019. In: Kementerian Kesehatan RI. 2020.
[7] Laurent V, Jauréguiberry S. Management of severe imported malaria in adults. Med Mal

Infect. 2020;50(2):213–25.
[8] Leblanc C, Vasse C, Minodier P, Mornand P, Naudin J, Quinet B, et al. Management and prevention of imported malaria in children . Update of the French guidelines. Med Mal Infect. 2020;50(2):127–40.
[9] Canavati SE, Lawford HLS, Fatunmbi BS, Lek D, Samphor NT, Leang R, et al. Establishing research priorities for malaria elimination in the context of the emergency response to artemisinin resistance framework - the Cambodian approach. Malar J. 2016;1–10.
[10] Ruckstuhl L, Lengeler C, Moyen JM, Garro H, Allan R. Malaria case management by community health workers in the Central African Republic from 2009 – 2014 : overcoming challenges of access and instability due to conflict. Malar J. 2017;1–10.
[11] Ferrara P, Aumatell CM, Agüero F, Maria J, Torrell R. Stand - by emergency treatment (SBET) of malaria in Spanish travellers : a cohort study. Malar J. 2018;1–6.
[12] Hennessee I, Guilavogui T, Camara A, Halsey ES, Marston B, Mcfarland D, et al. Adherence to Ebola - specific malaria case management guidelines at health facilities in Guinea during the West African Ebola epidemic. Malar J. 2018;1–13.
[13] Mcdonald CR, Weckman A, Greenblatt MR, Leligdowicz A, Kain KC. Integrated fever management : disease severity markers to triage children with malaria and non - malarial febrile illness. Malar J. 2018;1–7.
[14] Anand A, Favero R, Dentinger C, Ralaivaomisa A, Ramamonjisoa S, Rabozakandraina O, et al. Malaria case management and elimination readiness in health facilities of five districts of Madagascar in 2018. Malar J. 2020;1–14.
[15] Yusuph R, Sawe HR, Nkondora PN, Mfinanga JA. Profile and outcomes of patients with acute complications of malaria presenting to an urban emergency department of a tertiary hospital in Tanzania. BMC Res Notes. 2019;1–5.
[16] Throckmorton L, Hancher J. Management of Travel-Related Infectious Diseases in the Emergency Department. 2020;50–9.
[17] Tan R, Elmers J, Genton B. Malaria standby emergency treatment (SBET) for travellers visiting malaria endemic areas: A systematic review and meta-Analysis. J Travel Med. 2019;26(4):1–8.
[18] Moffitt CA, Olupot PO, Onen JW, Brien NO. Adherence to severe malaria treatment guidelines in children at a Ugandan regional hospital : a baseline assessment for a malaria treatment quality improvement project. Malar J [Internet]. 2023;1–8. Available from: https://doi.org/10.1186/s12936-023-04507-4
[19] Li G, Zhang D, Chen Z, Feng D, Cai X, Chen X. Risk factors for the accuracy of the initial diagnosis of malaria cases in China : a decision - tree modelling approach. Malar J [Internet]. 2022;1–12. Available from: https://doi.org/10.1186/s12936-021-04006-4
[20] Limoukou I, Journal M, Karl R, Limoukou I, Boris J, Wombo L, et al. Severe malaria in Gabon : epidemiological , clinical and laboratory features in Amissa Bongo Hospital of Franceville. Malar J [Internet]. 2023;1–8. Available from: https://doi.org/10.1186/s12936-023-04512-7
[21] Touré A, Camara AY, Bangoura A, Camara ML, Soumah M, Nabe S. Cerebral Malaria : Epidemiological , Clinical and Prognosis Aspects in the Anesthesia-Resuscitation Department CHU Ignace Deen. Open J Emerg Med. 2023;162–73.
[22] Organization WH. WHO Guidelines for malaria - 3 June 2022.

ISSN 2798-3471 (Cetak)
ISSN 2798-3641 (Online)

[23] Id MBC, Mcdermott MP, Seydel KB, Mathews M, Mwenechanya M, Id GLB. Aggressive antipyretics in central nervous system malaria : Study protocol of a randomized-controlled trial assessing antipyretic efficacy and parasite clearance effects (Malaria FEVER study). PLoS One [Internet]. 2022;1–28. Available from: http://dx.doi.org/10.1371/journal.pone.0268414

[24] Masyarakat DPK dan P. Pemberantasan Sarang Nyamuk dengan 3M Plus [Internet]. Kemenkes. 2023. Available from: https://ayosehat.kemkes.go.id/pemberantasan-sarang-nyamuk-dengan-3m-plus

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