

Self-treatment of malaria in rural communities, Butajira, southern Ethiopia

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Objectives To quantify the use of self-treatment and to determine the actions taken to manage malaria illness.

Methods A cross-sectional study was undertaken in six peasant associations in Butajira district, southern Ethiopia, between January and September 1999. Simple random sampling was used to select a sample of 630 households with malaria cases within the last six months.

Findings Overall, 616 (>97%) of the study households acted to manage malaria, including the use of antimalarial drugs at home (112, 17.8%), visiting health services after taking medication at home (294, 46.7%), and taking malaria patients to health care facilities without home treatment (210, 33.3%). Although 406 (64.5%) of the households initiated treatment at home, the use of modern drugs was higher (579, 92%) than that of traditional medicine (51, 8%). Modern drugs used included chloroquine (457, 73.5%) and sulfadoxine-pyrimethamine (377, 60.6%). Malaria control programmes were the main sources of antimalarials. In most cases of malaria, treatment was started (322, 52.3%) or health services visited (175, 34.7%) within two days of the onset of symptoms. Cases of malaria in the lowland areas started treatment and visited health services longer after the onset of malaria than those in the midland areas (adjusted odds ratio, 0.44; 95% confidence interval (CI), 0.30–0.64; and adjusted odds ratio, 0.37; 95% CI, 0.25–0.56, respectively). Similarly, those further than one hour's walk from the nearest health care facility initiated treatment later than those with less than one hour's walk (adjusted odds ratio, 0.62; 95% CI 0.43–0.87). This might be because of inaccessibility to antimalarial drugs and distant health care facilities in the lowland areas; however, statistically insignificant associations were found for sex, age, and religion.

Conclusion Self-treatment at home is the major action taken to manage malaria. Efforts should be made to improve the availability of effective antimalarials to communities in rural areas with malaria, particularly through the use of community health workers, mother coordinators, drug sellers, and shop owners.

Keywords Malaria, Falciparum/drug therapy; Malaria, Vivax/drug therapy; Antimalarials/administration and dosage/supply and distribution; Self care; Self medication; Patient acceptance of health care; Cross-sectional studies; Ethiopia (*source: MeSH, NLM*).

Mots clés Paludisme plasmodium falciparum/chimiothérapie; Paludisme plasmodium vivax/chimiothérapie; Antipaludique/administration et posologie/ressources et distribution; Autotraitement; Automédication; Acceptation des soins; Etude section efficace; Ethiopie (*source: MeSH, INSERM*).

Palabras clave Paludismo falciparum/quimioterapia; Paludismo vivax/quimioterapia; Antimaláricos/administración y dosificación/provisión y distribución; Autocuidado; Automedicación; Aceptación de la atención de salud; Estudios transversales; Etiopía (*fuelle: DeCS, BIREME*).

الكلمات المفتاحية: الملاريا المنجلية، المعالجة الدوائية، الملاريا النشيطة، مضادات الملاريا، المعالجة والجرعات، الإمداد والتوزيع، الرعاية الذاتية، التداوي الذاتي، قبول المرضى للرعاية الصحية، الدراسات المستعرضة، إثيوبيا (المصدر: رؤوس الموضوعات الطبية، إقليم شرق المتوسط).

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يمكن الاطلاع على الملخص بالعربية على الصفحة ٢٦٨.

Introduction

Malaria is the most widespread infectious disease and is a major public health problem, particularly in sub-Saharan Africa (1, 2). Studies in some health facilities in Africa showed that malaria constitutes 20–60% of all outpatient consultations and about 10% of hospital admissions (3, 4). The epidemiological situation with respect to malaria has worsened in Africa over the last decade, and the disease has occurred in areas previously free of malaria, because of changes in the climate (5).

Malaria is a major public health problem in Ethiopia, it is found in about 75% of the total area of the country, and 40 million (>65%) of the total population is at risk of infection (6). Malaria transmission is seasonal and depends on altitude and rainfall. Transmission usually occurs at altitudes <2000 m

above sea level. The two main seasons for transmission of malaria in Ethiopia are September–December, after the heavy summer rains, and March–May, after the light rains. *Plasmodium falciparum* and *P. vivax* are the dominant human malaria parasites and account for about 60% and 40% of cases, respectively (6). Malaria epidemics are frequent and widespread in the country. Most of the areas affected by epidemics are highland or highland fringe areas (mainly areas 1000–2000 m above sea level), in which the population lacks immunity to malaria (6). Occasionally, transmission of malaria occurs in areas previously free of malaria, including areas >2000 m above sea level, in which the microclimate and weather conditions are favourable for malaria.

Prompt access to early diagnosis and effective anti-malarial treatment is one of the major strategies for reducing

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morbidity and mortality from malaria (4). However, >85% of the total population of Ethiopia lives in rural areas where a significant proportion cannot easily access basic health facilities because of geographical or economic barriers, even though they recognize their illness as malaria (7). As a result, patients with malaria, particularly children, can die before they reach health services. In rural communities, home management of malaria in the form of self-treatment almost always is opted for after self-diagnosis based on presumptive symptoms of malaria (8). Lack of access to laboratory facilities usually means that malaria is diagnosed clinically in most peripheral parts of Ethiopia and antimalarial drugs are taken on a clinical basis. The inadequacies of health services — inequitable distribution, high costs, inaccessibility, and inefficiency (9) — and the high burden of malaria in rural communities are among the major reasons for current interest in self-treatment.

Many studies on self-medication in general and on self-treatment of malaria in particular were in countries other than Ethiopia (10–13). Among the studies that have investigated some aspects of self-treatment in Ethiopia, few addressed the specific issue of self-treatment of malaria (9, 14, 15). This study aimed to investigate the actions taken by communities to manage malaria — the sources and types of antimalarial drugs used, the determinants in whether and when health care is sought, the duration of antimalarial treatment, and the length of time between onset of malaria and start of treatment — to help in the design and evaluation of malaria control strategies and antimalarial drug policy.

Participants and methods

Study area and population

The study was conducted during January–September 1999 in six peasant associations of Butajira District (Meskanena Mareko *wereda*), southern Ethiopia. The associations included 4015 households and about 19 172 inhabitants. The district has diverse climatic conditions, ranging from lowlands to highland mountainous areas, and multi-ethnic groups. As a result, the Butajira Rural Health Program (BRHP) carried out continuous demographic surveillance from 1986 (16). The district lies at an average altitude of 1900 m above sea level. Most members of the rural population are engaged in subsistence farming, and the main crops cultivated are maize and *enset* (false banana). The area has one hospital, one health centre, three health stations, two malaria control centres, 12 health posts, 18 registered non-governmental health facilities, and an unknown number of non-registered health care providers.

The study area is characterized by seasonal malaria, with fluctuations in the number of cases from year to year (unpublished data, Butajira Malaria Control Office, 1997–98). A large peak in the number of malaria cases is seen from September to December, after heavy rainfall during June–August. This is followed by a second, less pronounced, peak in April and May. Between these peak transmission periods, the level of transmission is more or less constant and low. Malaria is the top cause of morbidity and mortality in the study area (unpublished data, Butajira District Hospital, 2001). *Plasmodium falciparum* and *P. vivax* are the two predominant human malaria parasites responsible for malaria. Overall, 18 250 malaria cases across all age groups were confirmed microscopically from 32 341 blood samples examined in 1997–98 from the Butajira District and its vicinities (52.3% were caused by

P. falciparum and 47.7% by *P. vivax*) (17). During periods of peak malaria transmission, *P. falciparum* is the most common cause of malaria; during periods of low transmission, *P. vivax* is as frequent a cause as *P. falciparum*, although not in terms of severity or cause of death. Malaria was perceived as the top cause of death because it accounted for about 26% of all deaths among those aged 15–49 based on longitudinal demographic surveillance by BRHP between 1995–99 (18).

Study design and sampling techniques

The study was a descriptive cross-sectional study. Six of the nine peasant associations of the BRHP's demographic surveillance study base were chosen based on the endemicity of malaria. Two peasant associations were located in the midland areas (1751–2000 m above sea level), and others in the lowland areas (<1750 m above sea level) (16). Two weeks before the study, a census in the associations was used to identify households with malaria cases within the past six months on the basis of the febrile illness report of the heads of households. Initially, all households with malaria cases in the selected peasant associations were identified; however, the numbers of residents in households identified in the selected associations were unequal. Study households, therefore, were chosen to be proportional to the average size of household in each peasant association. On average, 100 households were chosen, with a 5% contingency, to give a total sample of 630 households. The heads of the households, or in their absence the next responsible persons, were interviewed, with particular emphasis on the most recent episode of malaria in the household. Self-treatment was defined as the use of a modern antimalarial drug without consulting health professionals before or in the absence of a visit to a health facility.

Data collection and analysis

In May 1999, data collection was conducted by interviewers from BRHP, with a structured questionnaire specifically developed for the purpose. Ethical clearance was obtained from the Ethical Committee of Faculty of Medicine, Addis Ababa University. Informed consent of the study participants was obtained, and information and education was given to correct the participant's knowledge with respect to malaria, the type of drugs used, and the dosages used. Descriptive analyses of the data were carried out with EpiInfo version 6.02 software. Comparisons were made with Stata version 6.0 software across religion, altitude, and walking distance from health institutions to evaluate the determinants of the time between onset of malaria and treatment initiation or health service visit, and to determine adjusted odds ratios.

Results

The study interviewees comprised 52% men and 48% women aged 18–85 years. The mean (SD) and median ages were 35.26 (12.8) and 33 years, respectively. Most interviewees were Muslims (71%), illiterate (69.7%), farmers (50.6%), housewives (41.1%), and married (77%).

Table 1 gives the sex, age distributions, and other characteristics of recent malaria cases identified in the households by interviewees. The mean (SD) and median ages of cases were 22 (15.9) and 18 years, respectively, with a range of 6 months–70 years. Among the 611 (97%) respondents who knew the nearest health care facilities, 387 (63.3%) were within

Table 1. Case characteristics and actions taken to manage malaria illness in relation to selected variables

Variable	No. of cases in which action taken (%)				Total
	Visited health services		Home treatment alone	Other	
	After home treatment	Without home treatment			
Sex					
Male	142 (48.3)	105 (50)	54 (48.2)	2 (14.3)	303 (48.1)
Female	152 (51.7)	105 (50)	58 (51.8)	12 (85.7)	327 (51.9)
Total	294 (46.7)	210 (33.3)	112 (17.8)	14 (2.2)	630 (100)
Age group (years)					
0–4	26 (8.8)	23 (11.0)	11 (9.8)	0	60 (9.5)
5–9	42 (14.3)	23 (11.0)	13 (11.6)	0	78 (12.4)
10–14	41 (13.9)	36 (17.1)	22 (19.6)	5 (35.7)	104 (16.5)
15–19	44 (15.0)	27 (12.9)	10 (8.9)	4 (28.6)	85 (13.5)
20–24	33 (11.2)	35 (16.7)	12 (10.7)	1 (7.1)	81 (12.9)
≥25	108 (36.7)	66 (31.4)	44 (39.3)	4 (28.6)	222 (35.2)
Total	294 (46.7)	210 (33.3)	112 (17.8)	14 (2.2)	630 (100)
Religion					
Muslim	221 (75.2)	142 (67.6)	75 (67.0)	9 (64.3)	447 (71.0)
Christian	73 (24.8)	68 (32.4)	37 (33.0)	5 (35.7)	183 (29.0)
Total	294 (46.7)	210 (33.3)	112 (17.8)	14 (2.2)	630 (100)
Altitude					
Midland	46 (15.6)	58 (27.6)	4 (3.6)	3 (21.4)	111 (17.6)
Lowland	248 (84.4)	152 (72.4)	108 (96.4)	11 (78.6)	519 (82.4)
Total	294 (46.7)	210 (33.3)	112 (17.8)	14 (2.2)	630 (100)
Walking distance^a					
≤1 hour	165 (57.1)	123 (61.8)	89 (80.2)	10 (83.3)	387 (63.3)
>1 hour	124 (42.9)	76 (38.2)	22 (19.8)	2 (16.7)	224 (36.7)
Total	289 (47.3)	199 (32.6)	111 (18.2)	12 (2.0)	611 (100)

^a Analysis included only those who knew the distance of the nearest health care facility from their respective area of residence.

one hour's walking distance from the respondent's household and 224 (36.7%) more than one hour away (Table 1).

When asked about actions taken to manage malaria illness, 294 (46.7%) had visited health institutions after taking antimalarial drugs at home (Table 1). In total, 210 (33.3%) had visited health institutions without taking antimalarial drugs at home, and 112 (17.8%) had self-medicated at home with antimalarial drugs. The use of modern drugs for malaria was high (579, 92%), including 150 mg base chloroquine tablets (457, 73.5%) and 525 mg base sulfadoxine–pyrimethamine tablets (377, 60.6%). More than half (322, 52.3%) of the participants initiated treatment within two days of the onset of malaria (Table 2). The delay between the onset of malaria and a visit to a health institution was >2 days in 321 (63.6%) cases. Main reasons given for a delay in initiating treatment and visiting health services after onset of malaria were financial problems, inaccessible health services, and mild illness.

When asked about the usual sources of antimalarials, 300 (47.6%) participants mentioned the malaria control programme (Table 3). Chloroquine tablets usually were bought by 345 (54.8%) participants and sulfadoxine–pyrimethamine tablets by (272, 43.2%). Among the 349 respondents who ever bought antimalarial drugs from drug shops, markets, or any shops, sulfadoxine–pyrimethamine, chloroquine, and primaquine tablets were mentioned by 215 (61.6%), 201 (57.6%) and 16 (4.6%), respectively.

Participants who bought antimalarial drugs from drug shops, markets, or any shops were asked over how many days the antimalarial drug should be given to a patient with malaria.

Among 215 respondents who bought sulfadoxine–pyrimethamine tablets, 182 (84.7%) would administer it only once, 27 (12.6%) for two days, and 6 (2.8%) for three days. On the other hand, of 201 respondents who bought chloroquine tablets from similar sources, 116 (57.7%) would administer it for three days and 62 (30.6%) for two days. Antimalarial drugs were bought from markets or any shops because it was close to home (152, 43.6%), the drugs were cheap (90, 25.8%), the shops were easily accessible (73, 20.9%), and waiting time was short (40, 11.5%).

The survey asked what quantities of antimalarial drugs usually were bought to treat a single episode of malaria. Among 323 respondents who described the quantity of chloroquine tablet as 150 mg base, 292 (90.4%) bought ten tablets to treat a single episode of malaria. For sulfadoxine–pyrimethamine tablets, 173 out of 264 (65.5%) participants who were able to describe the dose as 525 mg base bought three tablets.

When asked about buying antimalarial drugs with prescriptions, 575 (91.3%) participants bought prescribed drugs. Antimalarial drugs were bought without prescription because of prior knowledge of the same drug for the same illness (28, 50.9%), because they were less expensive (13, 23.6%), to save time (6, 10.9%), because of peer influence (3, 5.5%), because the illness was mild (1, 1.8%), or because of dissatisfaction with health services (1, 1.8%). Overall, 542 (86%) of respondents had purchased all the antimalarial drugs prescribed by a health professional, and 75 (85.2%) of respondents who did not buy all the prescribed drugs stated that they could not afford to.

Table 2. Time between onset of malaria and initiation of treatment or visit to health care facilities

Variable	No. of patients (%)
Initiated treatment (n = 616)	
Less than one day	74 (12.0)
1–2 days	248 (40.3)
3–4 days	188 (30.5)
5–6 days	44 (7.1)
>6 days	55 (8.9)
Other	7 (1.1)
Visited health facilities (n = 504)	
Less than one day	30 (6.0)
1–2 days	145 (28.8)
3–4 days	158 (31.3)
>4 days	163 (32.3)
Other	8 (1.6)

Whether participants usually took antimalarial drugs according to the advice of health professionals during antimalarial drug dispensing was also assessed. Almost all, 603 (95.7%) participants complied with the health worker's advice about taking the full dosage at the appropriate amount and at the right time. Financial problems, poor advice, and saving the tablets for the next episode of malaria were given as reasons for not following the health professionals' advice.

The data were further analysed to determine whether there was any influence of the different variables and various aspects of the study household's practices on the time between onset of malaria and treatment initiation or visit to health services (Tables 4 and 5). The study peasant associations were divided into midland (Meskan and Dirama) and lowland (Bati, Dobena, Hobe, and Mjarda); those in the lowland areas initiated treatment and visited health services longer after the onset of malaria than those in midland areas. Similarly, households more than one hour's walking distance from the nearest health care facility started treatment later than those within one hour's walk.

Discussion

Most households in the study area acted to manage malaria, including the use of antimalarial drugs at home (17.8%), visit of health services after taking medication at home (46.7%), and taking malaria patients to health facilities without home medication (33.3%). Our findings agree with the results of studies carried out in Kenya, Togo, and Sri Lanka (10–13). In most rural communities, where people are familiar with the clinical manifestations and treatment of malaria, the first response to the illness is home treatment. Our analysis of the knowledge, attitudes, and practices of communities with respect to malaria indicated very good knowledge of the signs and symptoms of malaria (19). Consistent use of the same antimalarial drug by an individual for similar illnesses would favour home treatment of malaria without visiting health services.

Most earlier studies on home treatment of malaria were among children aged <5 years because this group is particularly susceptible to the disease. In Kenya, home treatment with an antimalarial drug was given to 47% of children, and only 43% were taken to a health facility (20). In Mali and Nigeria, 75.8% and 70.5%, respectively, of mothers managed their child's illness at home with antimalarial drugs (21, 22). This indicates that mothers and caretakers are major providers of antimalarial treatment.

Table 3. Usual sources and types of antimalarial drugs frequently bought by 630 households

Variable	No. of purchases (%) ^a
Source	
Malaria control programme	300 (47.6)
Private clinic	169 (26.8)
Health post	129 (20.5)
Health centre	110 (17.5)
Pharmacy	37 (5.9)
Health station	13 (2.1)
Market or any shop	9 (1.4)
Drug shop	6 (1.0)
Other	10 (1.6)
Drug usually bought	
Chloroquine	345 (54.8)
Sulfadoxine–pyrimethamine	272 (43.2)
Primaquine	19 (3.0)
Other ^b	85 (13.5)

^a Total percentages exceed 100% because of multiple responses.

^b Includes patients who bought antimalarials and antipyretics together, patients unable to describe the names of antimalarials, and patients who did not know.

More than half of malaria cases started malaria treatment at home within two days of onset of the illness. Most cases, however, visited health services at least two days after the start of illness. In a study in Sri Lanka, about 33% of patients sought treatment within two days of the onset of malaria; this was low compared with our results, in which about 67% sought treatment after two days (12). This tendency to provide home treatment before seeking care at a health facility has been observed in different studies (11, 13, 20). This enables us to suggest that self-treatment of malaria at home enhances the promptness of antimalarial treatment.

In areas where malaria control programmes operate, antimalarial drugs usually can be obtained free of charge from these sources. In our study, malaria control programmes were mentioned as usual sources of antimalarial drugs (48% of the study population), although they can be bought from shops because of problems with access to malaria control services. A study in central Ethiopia reported that 42.3% of patients used drug shops as a frequent source of antimalarial drugs (23); this higher use of drug shops as a source of antimalarials than that in our study could be because of ease of accessibility to such sources.

About 55% of the study population had ever bought antimalarial drugs from drug shops, market, or any shop. Similarly, 55% of residents with "malaria" in Guatemala bought antimalarial drugs from local stores and pharmacies (24), and in Kenya, mothers obtained antimalarials from pharmacies (54%) and small shops (29%) (19). Lack of access to formal health services, inadequate services (shortage of drugs and long waiting time), and the easy availability of over-the-counter treatments encourages the purchase of antimalarial drugs from unofficial sectors (8). Most medicines do not need mandatory prescriptions in Ethiopia, and people obtain drugs freely at pharmacies and drug shops. More than half of the participants had bought antimalarial drugs from drug shops, markets, or any other shops at which prescription of drugs usually is not required. This suggests a common practice of self-treatment of malaria without prescription in our study population.

It is well known that chloroquine is a widely available and commonly used antimalarial drug in Ethiopia. The common

Table 4. Relation between selected factors and timing of initiation of treatment after onset of malaria

Variable	Treatment initiation ^a			
	Early ^b	Late ^c	Odds ratio	
			Crude	Adjusted
Sex (n = 609)				
Male	159	139	1 ^d	1 ^d
Female	163	148	0.96 (0.69–1.34) ^e	0.99 (0.71–1.37)
Total	322	287		
Age group (years) (n = 609)				
0–4	28	29	1 ^d	1 ^d
5–9	40	38	1.09 (0.52–2.29)	1.01 (0.56–1.81)
10–19	105	72	1.51 (0.79–2.87)	1.04 (0.62–1.75)
≥20	149	148	1.04 (0.57–1.91)	0.75 (0.50–1.11)
Total	322	287		
Religion (n = 609)				
Muslim	234	200	1 ^d	1 ^d
Christian	88	87	0.86 (0.60–1.25)	0.98 (0.68, 1.41)
Total	322	287		
Altitude (n = 609)				
Midland	116	61	1 ^d	1 ^d
Lowland	206	226	0.48 (0.33–0.70)	0.44 (0.30–0.64)
Total	322	287		
Walking distance (n = 592)^f				
≤1 hour	211	160	1 ^d	1 ^d
>1 hour	101	120	0.64 (0.45–0.89)	0.62 (0.43–0.87)
Total	312	280		

^a Analysis included only those who initiated treatment for malaria illness.

^b ≤2 days

^c >2 days.

^d Reference category.

^e Values in parentheses are 95% confidence intervals.

^f Calculated for those who initiated treatment for malaria illness and knew the distance of the nearest health facility from their area of residence.

use of chloroquine by participants is consistent with the findings of other studies (11, 13, 24, 25). The widespread occurrence of chloroquine-resistant *P. falciparum* in Ethiopia meant that the national antimalaria drug policy was revised in 1998 and sulfadoxine–pyrimethamine was substituted for chloroquine (26). Sulfadoxine–pyrimethamine is the drug recommended for the first-line treatment of uncomplicated falciparum malaria in Ethiopia. In peripheral health services without laboratory facilities, sulfadoxine–pyrimethamine is given to patients with signs and symptoms suggestive of malaria. At the time of our survey, community awareness of the use of sulfadoxine–pyrimethamine was very high. The resistance of falciparum malaria to chloroquine is a concern for patients in rural communities: those in whom chloroquine is ineffective may rely on it without seeking alternative antimalarial drugs, which could delay early diagnosis and appropriate treatment.

If the availability of effective antimalarial drugs is improved for rural communities, their residents could use the drugs effectively against malaria. A community-based intervention in northern Ethiopia used mother coordinators to provide home treatment of malaria and showed a 40% reduction in mortality in those aged <5 years (15). In addition, a community-based malaria control programme in the northern part of the country, which used community health workers, had a good impact on morbidity and mortality (27). Sulfadoxine–pyrimethamine should be avail-

able, therefore, to the rural community for the treatment of malaria.

Residents from midland areas and those within one hour's walking distance of the nearest health care facilities seemed to initiate treatment and visit health services sooner after onset of malaria illness than those from lowland areas and more than one hour's walking distance. Reasons for this early initiation of treatment and visit to health facilities might be availability of antimalarial drugs and ease of access to health services. The relative severity of episodes of the illness because of lack of immunity against malaria may be another explanation for the early initiation of treatment and visits to health care facilities, because the disease is less prevalent in midland areas. Although this study contributes to the understanding of malaria self-treatment in rural communities, it was conducted based on the responses given by interviewees and, therefore, was subject to recall bias.

The main disadvantage of self-treatment is the lack of clinical evaluation of the patients by trained health professionals, which could result in missed alternative diagnoses and delays in appropriate treatment (20). The promotion of drug-resistant *P. falciparum* because of the widespread use of antimalarials in cases of under dosing and the risks associated with potentially toxic doses of these drugs are other possible disadvantages. Promotion of self-treatment through education on safe use of drugs and improved availability of antimalarials could easily avert these consequences.

Table 5. Relation between selected factors and timing of visit to health service after onset of malaria

Variable	Visit to health service ^a			
	Early ^b	Late ^c	Odds ratio	
			Crude	Crude
Sex (n = 496)				
Male	95	148	1 ^d	1 ^d
Female	80	173	0.71 (0.48–1.04) ^e	0.74 (0.50–1.09)
Total	175	321		
Age group (years) (n = 496)				
0–4	21	28	1 ^d	1 ^d
5–9	22	43	0.68 (0.30–1.57)	0.58 (0.30–1.13)
10–19	57	89	0.85 (0.42–1.73)	1.02 (0.55–1.88)
≥20	75	161	0.62 (0.32–1.22)	0.78 (0.49–1.24)
Total	175	321		
Religion (n = 496)				
Muslim	128	230	1 ^d	1 ^d
Christian	47	91	0.93 (0.60–1.43)	1.02 (0.66–1.59)
Total	175	321		
Altitude (n = 496)				
Midland	80	84	1 ^d	1 ^d
Lowland	95	237	0.42 (0.28–0.63)	0.37 (0.25–0.56)
Total	175	321		
Walking distance (n = 480)^f				
≤ 1 hour	96	189	1 ^d	1 ^d
> 1 hour	70	125	1.10 (0.74–1.64)	1.18 (0.79–1.77)
Total	166	314		

^a Analysis included only those who visited health care facility for treatment of malaria illness.

^b ≤ 2 days.

^c > 2 days.

^d Reference category.

^e Values in parentheses are 95% confidence intervals.

^f Calculated for those who visited health care facility for treatment of malaria illness and knew the distance of the nearest health care facility from their area of residence.

Most people affected by malaria do not attend general health care facilities. Even if a consultation is made, patients are likely to attend these health facilities only if home treatment is not successful. In countries in which malaria is endemic, case management of malaria through early diagnosis and prompt treatment is the cornerstone of malaria control (4). This approach is limited mainly to the general health care facilities and excludes a large proportion of the population living in rural communities. In Ethiopia, a significant proportion of the population still does not have easy access to general health services. To achieve a significant reduction in malaria mortality, the proportion of malaria cases that receive early and appropriate treatment through antimalarial drugs given as close to the households as possible needs to be increased. Strengthening community-based preventive and curative services at village level, as seen in northern Ethiopia (15, 27), therefore, can facilitate malaria control intervention. In the absence of such situations, self-treatment may be the only means by which communities can respond promptly to malaria. The use of sulfadoxine–pyrimethamine as a single dose is more reliable than chloroquine for avoiding sub-therapeutic doses.

Conclusion

As self-treatment of malaria is common in rural communities, efforts should be directed towards improving the

availability of appropriate antimalarial drugs to communities in endemic rural areas. A sustainable community-based system for the distribution of antimalarial drugs through the use of community health workers, particularly village malaria workers, mother coordinators, pharmacists, trained drug sellers, and shop owners would be helpful. Measures to promote correct self-treatment practices require an effective educational campaign, and people should be made aware of the dangers of misuse of drugs. More effective alternative drugs, such as sulfadoxine–pyrimethamine, should be made available, because the effectiveness of chloroquine against falciparum malaria has been compromised by drug resistance. ■

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Résumé

Autotraitement du paludisme dans des communautés rurales du district de Butajira (sud de l'Éthiopie)

Objectif Connaître l'ampleur de l'autotraitement du paludisme et déterminer quelles sont les mesures prises en cas de maladie.

Méthodes Une étude transversale a été réalisée entre janvier et septembre 1999 dans six associations de paysans du district de Butajira dans le sud de l'Éthiopie. On a utilisé une méthode d'échantillonnage aléatoire simple pour sélectionner 630 ménages ayant connu des cas de paludisme au cours des six derniers mois.

Résultats Au total, 616 (>97 %) parmi les ménages participant à l'étude prenaient des mesures en cas de paludisme, en se soignant avec des antipaludiques à domicile (112 ménages, 17,8 %), en consultant un service de santé après avoir pris des médicaments à domicile (294 ménages, 46,7 %), ou en conduisant le malade dans un établissement de soins sans traitement préalable à domicile (210 ménages, 33,3 %). Si 406 (64,5 %) ménages commençaient le traitement à domicile, ils utilisaient davantage les médicaments modernes (579 ménages, 92 %) que les remèdes traditionnels (51 ménages, 8 %). Ces médicaments étaient essentiellement la chloroquine (457 ménages, 73,5 %) et la sulfadoxine-pyriméthamine (377 ménages, 60,6 %). Les programmes de lutte antipaludique constituaient la principale source de médicaments. Dans la plupart des cas, le malade commençait le traitement (322 ménages, 52,3 %) ou consultait un service de

santé (175 ménages, 34,7 %) dans les deux jours suivant l'apparition des symptômes. Dans les régions de plaine, les malades commençaient le traitement et voyaient les services de santé plus longtemps après l'apparition des symptômes que dans les régions de moyenne altitude (odds ratio ajusté : 0,44 ; intervalle de confiance (IC) à 95 % : 0,30-0,64 et odds ratio ajusté : 0,37 ; IC 95 % : 0,25-0,56 respectivement). De même, les malades habitant à plus d'une heure de marche de l'établissement de soins le plus proche commençaient le traitement plus tard que ceux qui habitaient plus près (odds ratio ajusté : 0,62 ; IC 95 % : 0,43-0,87). Ces observations pourraient s'expliquer par le manque d'accès aux antipaludiques et l'éloignement des établissements de soins dans les régions de plaine. On a cependant trouvé des associations non statistiquement significatives avec le sexe, l'âge et la religion.

Conclusion L'autotraitement à domicile est la principale mesure prise en cas de paludisme. Il faudra s'efforcer d'améliorer l'accès à des antipaludiques efficaces dans les communautés des zones rurales touchées par le paludisme, notamment par le biais des agents de santé communautaires, de mères spécialement formées pour conseiller les autres mères, des vendeurs de médicaments et des commerçants en général.

Resumen

Autotratamiento del paludismo en comunidades rurales de Butajira (sur de Etiopía)

Objetivo Cuantificar el recurso al autotratamiento y determinar las medidas tomadas para manejar el paludismo.

Métodos Entre enero y septiembre de 1999 se emprendió un estudio transversal en seis asociaciones campesinas del distrito de Butajira, en el sur de Etiopía. Mediante muestreo aleatorio simple se seleccionó una muestra de 630 hogares con casos de paludismo ocurridos en los seis últimos meses.

Resultados Globalmente, 616 (> 97%) de los hogares abarcados por el estudio tomaron medidas para controlar el paludismo, incluidos el uso de medicamentos antipalúdicos en el hogar (112, 17,8%), la visita a servicios de salud después de tomar medicación en casa (294, 46,7%) y la presentación de pacientes con paludismo en establecimientos de salud sin tratamiento domiciliario previo (210, 33,3%). Aunque 406 (64,5%) hogares iniciaron el tratamiento en casa, el uso de medicamentos modernos fue mayor (579, 92%) que el de remedios tradicionales (51, 8%). Entre los primeros figuraban la cloroquina (457, 73,5%) y la sulfadoxina-pirimetamina (377, 60,6%). Las fuentes principales de anti-maláricos fueron los programas de lucha antipalúdica. En la mayoría de los casos se inició el tratamiento (322, 52,3%) o se acudió al servicio de salud (175, 34,7%) antes de transcurridos dos

días desde la aparición de los síntomas. Los afectados residentes en áreas de las tierras bajas tardaron más en comenzar el tratamiento o acudir a los servicios de salud tras la aparición de los síntomas que los de las zonas del centro (razón de posibilidades ajustada: 0,44; intervalo de confianza del 95%: 0,30–0,64; y razón de posibilidades ajustada: 0,37; IC95%: 0,25–0,56, respectivamente). Análogamente, las personas que vivían a más de una hora de camino del establecimiento de salud más cercano comenzaron el tratamiento más tarde que quienes se hallaban a menos de una hora (razón de posibilidades ajustada: 0,62; IC95%: 0,43–0,87). Ello podría deberse a la falta de acceso a medicamentos antipalúdicos y a la lejanía de los centros de salud en las zonas de las tierras bajas. En cambio, no se observaron asociaciones estadísticamente significativas en relación con el sexo, la edad y la religión.

Conclusión El autotratamiento domiciliario es la principal medida para controlar el paludismo. Hay que procurar mejorar la disponibilidad de antipalúdicos eficaces en las comunidades de las zonas rurales con paludismo, recurriendo para ello en particular a los agentes de salud comunitarios, las madres coordinadoras, los vendedores de medicamentos y los tenderos.

المعالجة الذاتية للملاريا في المجتمعات الريفية، بوتاجيرا، جنوب أثيوبيا

في ١٧٥ حالة (٣٤,٧٪) فيما شرع بالمعالجة خلال يومين من بدء الأعراض في ٣٢٢ حالة (٥٢,٣٪). وتأخر البدء بالمعالجة أو زيارة المرافق الطبية في المناطق المنخفضة عما كان عليه في المناطق المتوسطة، إذ بلغت نسبة الأرجحية المصححة ٠,٤٤، بفاصلة ثقة ٩٥٪، وتراوح بين ٠,٣٠ - ٠,٦٤. أما في المناطق المتوسطة فقد بلغت نسبة الأرجحية المصححة ٠,٣٧، بفاصلة ثقة ٩٥٪ وتراوح بين ٠,٢٥ - ٠,٥٦. أما أولئك الذين يعيشون على بعد من أقرب مركز صحي بمسافة تزيد على مسيرة ساعة فقد شرعوا بالمعالجة متأخرين عن أولئك الذين يعيشون على بعد من أقرب مركز صحي يقل عن مسيرة ساعة (كانت نسبة الأرجحية المصححة ٠,٦٢٢، بفاصلة ثقة ٩٥٪ تراوحت بين ٠,٤٣ - ٠,٨٧. وقد يرجع ذلك إلى عدم توافر الأدوية المضادة للملاريا وإلى تباعد المسافات بين المرافق الصحية في البلدان المنخفضة؛ وقد لوحظ ترابط إحصائي هام مع كل من العمر والجنس والديانة.

الاستنتاج: تُعدُّ المعالجة الذاتية في المنزل من أهم ما يُتخذ من الأعمال في سياق التدبير العلاجي للملاريا. وينبغي بذل الجهود لتحسين توفير الأدوية الفعالة المضادة للملاريا في المجتمعات الريفية التي تكثُر فيها الإصابة بالملاريا، ولاسيما من خلال العاملين الصحيين المجتمعيين والعاملين على التنسيق بين الأُمهات وبائعي الأدوية وأصحاب المحلات.

الغرض: تحديد مدى الانتفاع من المعالجة الذاتية كميًا والأعمال المتبعة في التدبير العلاجي للملاريا.

الطريقة: أجريت دراسة مستعرضة على ست من الروابط الفلاحية في مقاطعة بوتاجيرا جنوب أثيوبيا في الفترة بين شهري كانون الثاني/يناير وأيلول/سبتمبر ١٩٩٩. وقد اختيرت العينات بطريقة عشوائية بسيطة وبلغت ٦٣٠ من السكان الذين أصيبوا بالملاريا خلال الأشهر الستة السابقة.

الموجودات: لقد عمل ٦١٦ من أفراد الدراسة (وهم يزيدون عن ٩٧٪) على التدبير العلاجي للملاريا؛ فقد أخذ ١١٢ منهم (١٧,٨٪) المعالجة في المنزل، وقام ٢٩٤ منهم (٤٦,٧٪) بزيارة المرافق الصحية بعد تناول المعالجة في المنزل، فيما قام ٢١٠ منهم (٣٣,٣٪) باصطحاب المرضى المصابين بالملاريا إلى المرافق الصحية دون تناول المعالجة في المنزل. ورغم أن ٤٠٦ من عناصر الدراسة قد بدأ بتناول المعالجة في المنزل، فإن استخدام الأدوية الحديثة في ٥٧٩ من الحالات (٩٢٪) كان أعلى من استخدام الأدوية التقليدية الذي اقتصر على ٥١ حالة (٨٪). وقد اشتملت الأدوية الحديثة على كل من الكلوروكين الذي استخدم في ٤٧ حالة (٧٣,٥٪) والسلفادوكسين — بيريميثامين الذي استخدم في ٣٧٧ حالة (٦٠,٦٪). وقد كانت برامج مكافحة الملاريا هي المصادر الرئيسية للأدوية المضادة للملاريا. وقد تمت زيارة المرافق الصحية خلال يومين من بدء الأعراض

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