

Household survey of treatment of malaria in Hajjah, Yemen

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مسح أُسري حول معالجة الملاريا في حجة بالجمهورية اليمنية
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الخلاصة: تنتشر ممارسة المعالجة الذاتية في الجمهورية اليمنية، والغرض من هذه الدراسة وصف معالجة الملاريا في الأسر والترويج للمعالجة الرشيدة. وقد قمنا بمسح 201 من الأسر التي يعاني أفرادها من الملاريا أو ممن يعالجون بالأدوية المضادة للملاريا، وتم تسجيل أعداد الأدوية الموصوفة وغير الموصوفة مع تقييم درجة ترشيد المعالجة، وملاحظة النماذج الشائعة للمعالجات غير الرشيدة. وقد كان تناول الأدوية المتعددة شائعاً، بمعدل 3.8 دواءً بشكل عام منها 1.3 من الأدوية المضادة للملاريا. وقد كانت إساءة استعمال الحقن وفرط استخدامها شائعاً. ويمارس الناس المعالجة الذاتية بناءً على معتقداتهم وخبراتهم وبسبب قلة الثقة بالخدمات الصحية وارتفاع تكاليف المعالجة. ولم يكن معظم الناس على علم بالمخاطر المحتملة للأدوية المضادة للملاريا.

ABSTRACT The practice of self-medication is widespread in the Republic of Yemen. The objectives of this study were to describe the treatment of malaria in households and to promote rational treatment. We surveyed 201 households with family members suffering from malaria or being treated with antimalarials. Numbers of prescribed and non-prescribed drugs were recorded and treatment rationality assessed. Common patterns of irrational treatment of malaria were observed. Polypharmacy was common, with an average of 3.8 total drugs and 1.3 antimalarials found per encounter. Misuse and overuse of injectable antimalarials was common. People practised self-medication because of belief, experience, lack of confidence in health services and cost of treatment. Most had no knowledge concerning possible risks of antimalarials.

Enquête auprès des ménages sur le traitement du paludisme à Hajjah (République du Yémen)

RESUME L'automédication est une pratique courante dans la République du Yémen. Les objectifs de cette étude étaient de décrire le traitement du paludisme dans les ménages et de promouvoir un traitement rationnel. Nous avons enquêté auprès de 201 foyers dont certains membres souffraient de paludisme ou étaient traités avec des antipaludiques. Le nombre de médicaments prescrits et non prescrits a été enregistré et la rationalité du traitement a été évaluée. Des caractéristiques courantes de traitement irrationnel ont été observées. La polypharmacie était courante, avec une moyenne de 3,8 médicaments au total et 1,3 antipaludiques trouvés par visite. L'usage inapproprié et l'abus d'antipaludiques injectables étaient courants. Les personnes pratiquaient l'automédication pour plusieurs raisons : croyances, expérience, manque de confiance dans les services de santé et coût du traitement. La plupart d'entre elles ne connaissaient pas les risques éventuels des antipaludiques.

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Introduction

Malaria is thought to kill about 1.1–2.7 million people worldwide each year, of which about 1 million are children under the age of 5 years [1]. The disease is a public health problem in the Republic of Yemen, and cases are reported throughout the year, with some variation from one geographic zone to another and from one season to another [2,3]. It is estimated that 60% of the 18 million population live under the threat of malaria infection and about 2 million are attacked annually. Estimated mortality is 1%, mainly among children below the age of 5 and pregnant women [4]. The predominant species of malaria parasite is *Plasmodium falciparum*, which is responsible for nearly 90% of all reported cases [3].

In Hajjah governorate, which is situated in the northern part of the country, malaria is a major health problem. It accounts for about 31.7% of all attendance to health facilities in the districts studied [5].

In addition to being treated at public and private health facilities, self-medication is widespread and is a frequently chosen practice. Many people in malarious areas may not have ready access to antimalarial drugs and to reliable and consistent information about malaria treatment and prevention [6]. They may use antimalarials, which may be counterfeit, obtained from informal sources. These drugs may be of variable quality, partially or completely ineffective and they are often used in inappropriate dosage [7].

In the Republic of Yemen as well as in many developing countries there is inappropriate, ineffective and inefficient use of drugs [8–11]. The 1985 Nairobi conference on the rational use of drugs organized by WHO marked the start of a global effort to promote rational drug use [12].

Curiously, little effort has been made to improve drug use in malaria-endemic countries and to assess the benefits of such improvement [13]. Unfortunately, no single study has yet been undertaken on the rational treatment of malaria in households in the Republic of Yemen.

The WHO Action Programme on Essential drugs (WHO/DAP) and the International Network for Rational Use of Drugs (INRUD) have made serious attempts to examine drug use rationality and have developed indicators for assessment [14,15]. The core drug use indicators they developed were used in this study.

The overall objective of this study was to describe the extent of antimalarial drug use and attitudes towards self-medication among families. The specific objectives were:

- to provide information on patterns of antimalarial drug use in households
- to determine the sources of information about self medication
- to identify the main reasons leading to self-medication
- to acquire baseline information for future wider studies and for targeting and evaluating interventions

Methods

This study was a cross-sectional survey conducted during the period January to May 2003. The sample comprised 201 households with members diagnosed with malaria or being treated with antimalarial drugs in 3 malaria endemic districts, Hajjah, Haradh, and Abbs, in Hajjah governorate, Republic of Yemen. Households with members diagnosed with malaria or being treated with antimalarial drugs were identified

from prescriptions and patient registration books. The households involved in this study were selected by convenience method.

All prescribed and non-prescribed drugs, including antimalarials, found in households were recorded. The mean number of prescribed drugs only, non-prescribed drugs only, all drugs (prescribed plus non-prescribed) and antimalarial drugs only per encounter were calculated. The types and dosage forms of antimalarial drugs were counted. Drugs were identified from the prescriptions and/or packaging found in households.

A structured questionnaire about knowledge, attitude and practices concerning malaria treatment in households was developed as the instrument of this field survey and covered:

- expectations/motivations with regard to the practice of self-medication;
- alternatives to self-medication in case of no relief;
- knowledge of possible adverse effects and appropriate use of antimalarial drugs;
- sources of information on practising self-medication;
- manner of requesting drugs from private pharmacies and drugstores;
- who bring the drugs from the private pharmacy or drugstore?

A pilot study was carried out in order to test the questionnaire and train the interviewers. The data was collected by trained health workers supervised by qualified researchers.

Data collectors went from house to house and surveyed those households that had people suffering from malaria or being treated with antimalarial drugs. It was planned to survey 60 households in each district. In fact, data were collected from

83 households in Hajjah, 58 in Haradh and 60 in Abbs. Only those household members suffering from malaria or being treated with antimalarials were interviewed. All the collected questionnaires were used in the study. All the people interviewed participated voluntarily and were requested to answer the questions freely. No-one refused to participate.

Results

The results for number of drugs found in the 3 study areas are shown in Table 1. The overall mean number of drugs per prescription was 2.89, mean 1.28 for antimalarials. The highest number of antimalarial drugs on a single prescription was 3.

In addition to the prescribed drugs, self-medicated drugs were found. The overall average was 0.87, with 0.04 for antimalarials. The highest number of non-prescribed drugs found in a single encounter was 3 drugs and 1 antimalarial drug.

The mean number of all drugs (prescribed plus self-medicated) per encounter was 3.76. The mean number of prescribed plus self-medicated antimalarial drugs was 1.32 (Table 1). The highest number of prescribed plus self-medicated drugs found in a single encounter was 8, of which 3 were antimalarial drugs.

The prevalence for different dosage forms of antimalarial drugs was: tablets 43.6%, oral liquids 13.9%, injections 42.5%. The prevalence of injectable antimalarials was 35.3% in Hajjah, 40.7% in Haradh and 53.9% in Abbs (Table 2). There were incidences where 2 different injectable antimalarial drugs were found.

Table 3 shows the prevalence for 6 different antimalarial drugs found in use in the survey areas. Three antimalarials were found in some encounters.

Table 1 Prevalence of prescribed and self-medicated antimalarial and other drugs in 3 areas of Hajjah governorate, Republic of Yemen

Town	No. of encounters	No. of drugs		Mean no. of drugs/encounter	
		All	AM	All	AM
<i>Prescribed drugs</i>					
Hajjah	83	218	101	2.63	1.22
Haradh	58	178	81	3.07	1.40
Abbs	60	185	76	3.08	1.27
Total	201	581	258	2.89	1.28
<i>Non-prescribed drugs (self-medicated drugs)</i>					
Hajjah	83	35	1	0.42	0.01
Haradh	58	67	5	1.16	0.09
Abbs	60	72	2	1.20	0.03
Total	201	174	8	0.87	0.04
<i>Prescribed + self-medicated drugs</i>					
Hajjah	83	253	102	3.05	1.23
Haradh	58	245	86	4.22	1.48
Abbs	60	257	78	4.28	1.30
Total	201	755	266	3.76	1.32

AM = antimalarial drugs.

The attitude of the people interviewed with regard to self-medication were:

- They were hopeful that self-medication would result in recovery.
- They believed in the effectiveness of self-medication from their previous experience.
- They felt that the disease is simple, can be treated easily and does not require medical consultation.
- They had no desire to visit the health worker.
- They had little confidence in the health worker.
- The cost of treatment was lower.

The majority of people interviewed mentioned that they would use any alternatives to self-medication if no relief was obtained. Most of the respondents had no

knowledge concerning the possible health risks (adverse effects, contraindications and interactions) of their antimalarial drugs, nor did they have knowledge of the appropriate use of these drugs.

The households obtained their knowledge to practice self-medication with antimalarial drugs from a private pharmacy or drugstore, families, relatives, friends and acquaintances or through self-knowledge owing to previous treatment.

The manner in which non-prescribed antimalarial drugs were requested by households from private pharmacies or drugstores included giving the name of the drug class (antimalarial) or drug name (e.g. chloroquine), stating the disease directly (malaria), describing the symptoms or complaints (fever), showing an empty drug container or outer packet, describing drug

Table 2 Prevalence of dosage forms of all (prescribed and non-prescribed) antimalarial drugs in 3 areas of Hajjah governorate, Republic of Yemen

Health facility	n	Dosage form		
		Tablet (<i>P</i> = 0.04) No. (%)	Oral liquid (<i>P</i> = 0.93) No. (%)	Injection (<i>P</i> = 0.04) No. (%)
Hajjah	102	51 (50.0)	15 (14.7)	36 (35.3)
Haradh	86	40 (46.5)	11 (12.8)	35 (40.7)
Abbs	78	25 (32.1)	11 (14.1)	42 (53.9)
Total	266	116 (43.6)	37 (13.9)	113 (42.5)

P-values for χ^2 tests.
AM = antimalarial.

dosage form and colour (e.g. brown ampoule), or taking the patient to the private pharmacy or drugstore.

Most antimalarial drugs required for self-medication were meant for family use within the household. In many cases younger sons, relatives or neighbours were involved in requesting drugs from the pharmacy or drugstore.

Discussion

Some patients self-medicated with antimalarial drugs and/or other drugs in addition to the prescribed drugs. All types of dosage forms as well as the different types of essential and non-essential antimalarials were available in the three districts studied and were used for self-medication.

The fact that often a person other than the patient bought antimalarial drugs makes it difficult to predict the extent to which these encounters were effective in informing the patient in terms of receiving information about drug use and related issues.

It is clear from the results obtained in this study that inappropriate practices, and consequently inappropriate use of drugs, are going on. This is borne out by results of other studies on self-medication that have been carried out in the Republic of Yemen and other developing countries, [16,17] (O. Attef, unpublished data, 1997) (A. Hattab, unpublished data, 1997).

In developing countries, self-medication should be considered a public health problem owing to lack of appropriate medical education in patients [18]. Although a

Table 3 Prevalence of each type of antimalarial drug (prescribed and non-prescribed) in 3 areas of Hajjah governorate, Republic of Yemen

Area	n	Antimalarial drug					
		CQ (<i>P</i> = 0.01) No. (%)	Q NV No. (%)	SP (<i>P</i> = 0.08) No. (%)	PQ NV No. (%)	ART NV No. (%)	HAL NV No. (%)
Hajjah	102	77 (75.5)	0 (-)	23 (22.6)	0 (-)	2 (2.0)	0 (-)
Haradh	86	50 (58.1)	3 (3.5)	22 (25.6)	8 (9.3)	2 (2.30)	1 (1.2)
Abbs	78	45 (57.7)	4 (5.1)	29 (37.2)	0 (-)	0 (-)	0 (-)
Total (mean)	266	172 (64.7)	7 (2.6)	74 (27.8)	8 (3.0)	4 (1.5)	1 (0.4)

P-values for χ^2 tests.
NV = χ^2 not valid.

Drugs: chloroquine (CQ), quinine (Q), sulphadoxine/pyrimethamine (SP), primaquine (PQ), artemether (ART) and halofantine (HAL).

significant number of people throughout the world practise self-medication, only a very low proportion get information about medicines from sources in the community because very little appropriate information is available at this level [17].

Conclusion

Inappropriate self-medication in general, and self-treatment of malaria in particular, as found in this study, may result in ineffective and unsafe treatment. This in turn may cause health risks such as adverse reactions and discomfort for the patient. In addition, it may lead to a relapse of the disease and the development of drug resistance.

Although the aim of self-medication is prevention or treatment of disease, it can result in health hazards and economic losses for both the individual and the community [17]. It would not be possible or even desirable to try to eliminate self-medication completely. It is, however, important to find ways of using this practice to strengthen primary health care through educating consumers in how to avoid the irrational use of drugs. People should be informed about alternatives to self-medication, i.e. seeking qualified advice.

The deficiencies identified in this study will serve as a basis for targeting and evaluating future interventions. A proper antimalarial drug policy and adequate flow of reliable drug information is essential.

Recommendations

- Relevant interventions should be designed to improve the quality of treatment in malaria endemic areas of the country.
- Public health education about appropriate treatment of malaria should be more easily available to encourage people to go to health facilities for treatment when they feel sick and to make them aware of the negative impact of irrational self-medication practices.
- Private community pharmacies and drugstores should not dispense antimalarial drugs without prescription in areas where health facilities are available.

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