

Monitoring Adverse Effects and Efficacy Associated with Short-Term Mefloquine Chemoprophylaxis: Experience of the Moroccan Level II Hospital in the Democratic Republic of the Congo

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Abstract

Original Research Article

Malaria is transmitted by a parasite carried by certain species of Anopheles mosquitoes. The much-debated mefloquine was discovered in the 1970s by U.S. Army researchers. It is widely used to prevent and treat malaria. Our aim is to evaluate the different types of adverse reactions reported by military personnel at the Moroccan hospital in the Democratic Republic of the Congo. This is a prospective, cross-sectional study lasting three months. It was carried out using a three-part questionnaire (patient identification, vector protection used, adverse events reported, and whether or not a malaria attack had occurred). 67 military personnel. The majority of soldiers were men (97.28%), with 95% aged between 26 and 45. 100% of soldiers used mosquito nets and repellents. During the first month of chemoprophylaxis, 30% of soldiers had adverse reactions (60% had nightmares, 30% had asthenia, and 10% had somnolence). From the second month onwards, 50% of soldiers had adverse reactions (65% nightmares, 40% asthenia, 20% memory disorders, 10% somnolence, 5% headaches, and 5% insomnia). Towards the end of the third month, 53% of servicemen experienced adverse reactions (65% nightmares, 40% asthenia, 20% memory disorders, 10% somnolence, 5% headaches, 5% insomnia, and 3% anxiety). During these three months, only one case suffered a malaria attack. Mefloquine is an antimalarial drug commonly used to prevent and treat malaria. It is important to note that chemoprophylaxis alone does not guarantee 100% protection against malaria. Additional measures must therefore be taken, such as wearing long, light clothing, using insecticide-impregnated mosquito nets, and using repellents.

Keywords: Malaria, Mefloquine, Adverse Reactions, Short-Term Chemoprophylaxis, Efficacy.

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INTRODUCTION

Malaria is transmitted by a parasite carried by certain species of Anopheles mosquitoes. The best way to protect against it is to avoid mosquitoes by wearing long clothing and using insect repellents, since there is no vaccine against this parasite. It is mainly found in tropical countries Democratic Republic of the Congo (DRC).

The much-debated mefloquine was discovered in the 1970s by U.S. Army researchers. It has the advantage of once-weekly administration, making it the treatment of choice for long stays and minimizing the risk of forgetfulness.

In a study carried out by the Institut national de santé publique du Québec among 180 Quebecers who contracted malaria between 2004 and 2007, only seven of the 39 people who had taken antimalarial drugs had missed a dose.

The soldiers from the Moroccan level II medical unit are staying in Bunia for six months. During their stay, the chosen antimalarial chemoprophylaxis is mefloquine 250mg once a week. Doxycycline is reserved for cases presenting adverse reactions to mefloquine [1].

Our objective is to evaluate, through a questionnaire, the different types of adverse reactions reported by the soldiers of the Moroccan hospital in the DRC.

MATERIAL AND METHOD

We carried out a prospective, cross-sectional study over a three-month period from March 1st to June 1st, 2023, involving 67 military personnel. The study took place at a level II Moroccan hospital in the DRC.

Target Population: This questionnaire is intended for military personnel at the Moroccan hospital in the DRC.

Inclusion Criteria: Military personnel on mefloquine

Exclusion Criteria: Military personnel taking doxycycline

Data Collection Methods

Distribution of a three-part questionnaire

- The first part is reserved for patient identification.
- The second part concerns vector protection.
- The third part was devoted to adverse events reported and whether or not a malaria attack had occurred.

The data was collected using a pre-established data processing form. We entered and analyzed their data using Microsoft Excel and JAMOVI software.

Ethical Considerations

- The data were analyzed in compliance with ethical rules.
- The questionnaire was anonymous, with the person's consent.

RESULTS

A. Military Identification:

Sex: 97.28% of servicemen are men, and women represent 2.72% of servicemen.

Age: 95% of patients were aged between 26 and 45, and 5% between 46 and 55.

B. Vector Protection: 100% of military personnel use mosquito nets and repellents.

C. Reported Adverse Events: Undesirable effects in the first month: diagram I

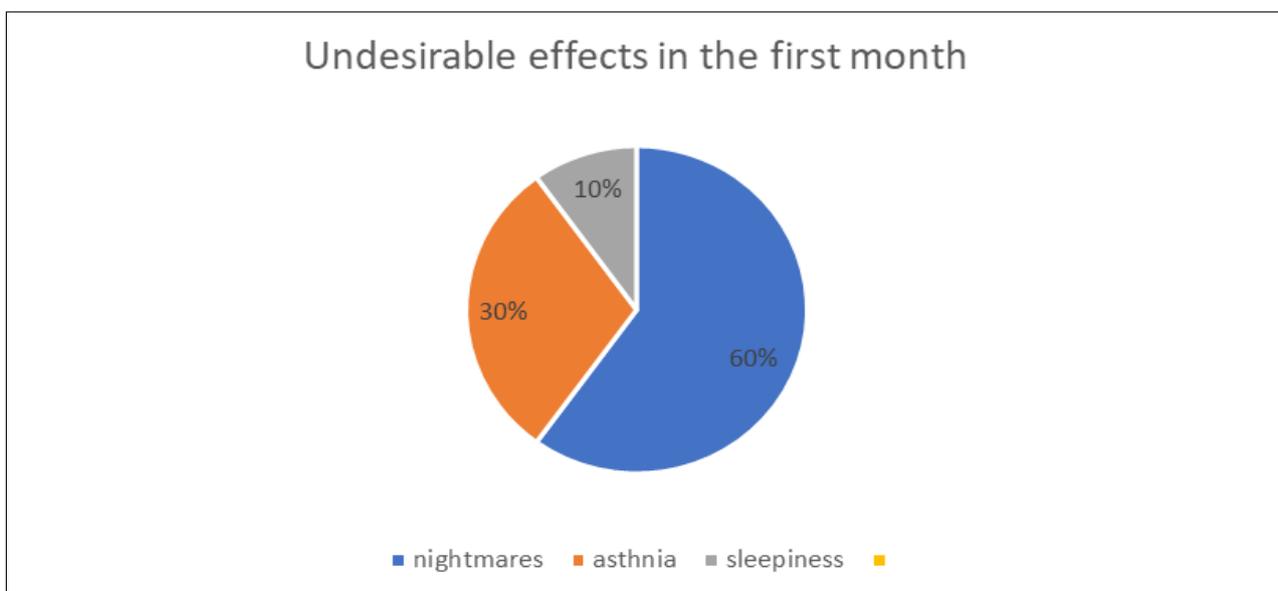


Fig. 1

- 70% of servicemen had no adverse effects.
- 30% of servicemen had undesirable effects (60% had nightmares, 30% had asthenia, 10% had sleepiness).
- Second-month side effects: diagram II

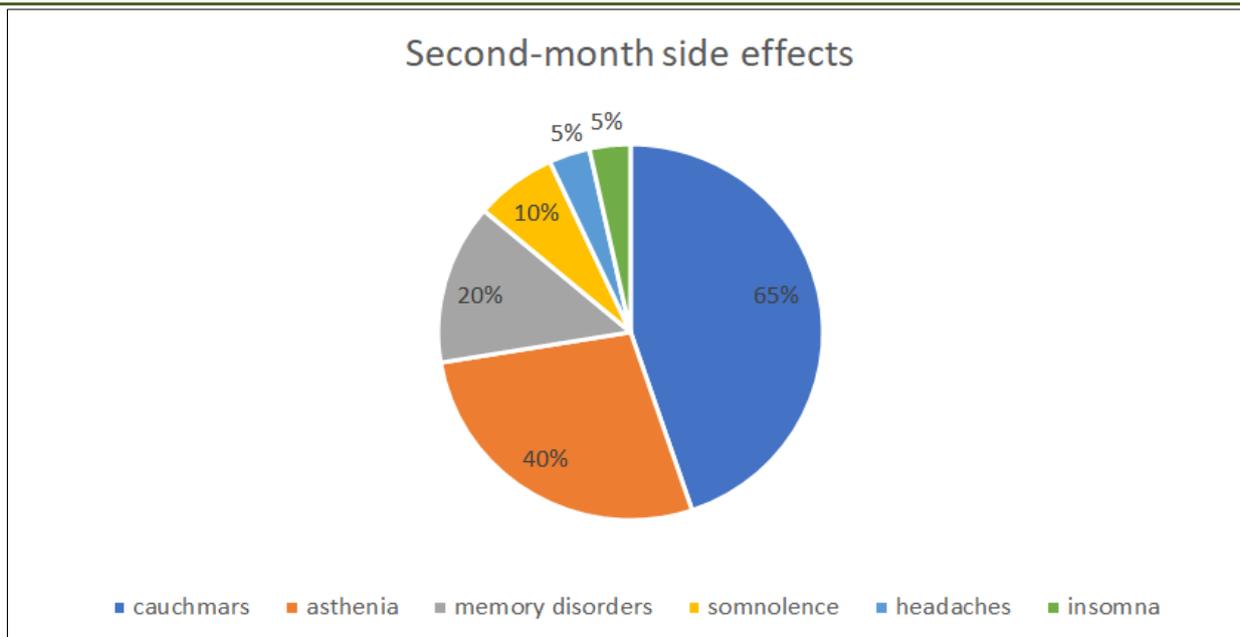


Fig. 2

- 50% of soldiers did not have any adverse effects.
- 50% of servicemen had adverse reactions (65% cauchmars, 40% asthenia, 20% memory disorders, 10% somnolence, 5% headaches, and 5% insomnia).
- Third-month side effects: diagram III

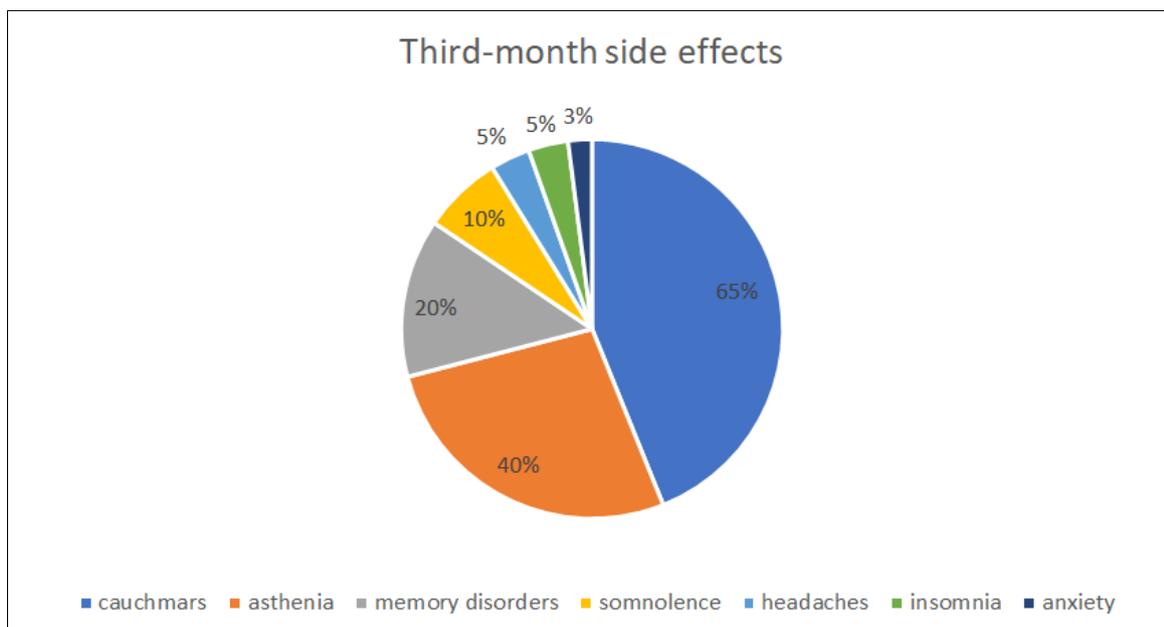


Fig. 3

- 47% of soldiers did not experience any adverse effects.
- 53% of servicemen had adverse reactions (65% cauchmars, 40% asthenia, 20% memory disorders, 10% somnolence, 5% headaches, 5% insomnia, and 3% anxiety).

D. Malaria: Only one case presented a malaria attack. Treated with artemether and lumefantrine.

DISCUSSIONS

Mefloquine is an antimalarial drug commonly used to prevent and treat malaria. However, like any drug, mefloquine can cause adverse reactions in some

patients. The percentage of adverse reactions to mefloquine can vary depending on many factors, such as the patient's age and medical history, as well as the dosage and duration of use.

In our study, the majority of servicemen were between 26 and 45 years of age, so all the servicemen declared that they used mefloquine regularly and had no previous history of it.

In our study, all soldiers used insecticide-impregnated mosquito nets and skin repellents for vector control. According to studies, between one-quarter and one-half of mefloquine users suffer various side effects of varying intensity at the start of treatment, including nausea, dizziness, insomnia, nightmares, anxiety attacks, hallucinations, headaches, and diarrhea. Most of the time, these discomforts are bearable and disappear rapidly [2].

During the first month, the majority of patients (around 70%) experience no adverse effects from mefloquine. However, around 30% of patients experience side effects, the most common of which are nightmares, asthenia, and somnolence.

From the second month on, half of all servicemen experience side effects, the most common of which are nightmares, asthenia, memory disorders, drowsiness, headaches, and insomnia. Mefloquine has always been contraindicated for people who have already suffered from psychiatric disorders [3], such as depression, generalized anxiety, or convulsions.

It is reported that 1–6% of people have to stop treatment because of the severity of the adverse effects. Among these people, some experience potentially serious or even fatal neuropsychiatric reactions, such as psychosis or suicidal ideation [4–6].

Towards the end of the third month, the percentage of servicemen suffering from adverse effects rose to 53% as anxiety episodes increased.

A similar pharmacovigilance study of long-term mefloquine chemoprophylaxis showed it to be an effective and well-tolerated option for malaria chemoprophylaxis [7].

In our study, we noted only one case of malaria among 67 soldiers. The low incidence of malaria testifies

to the efficacy of mefloquine and the importance of using mosquito nets and repellents for vector protection.

CONCLUSION

Mefloquine is an antimalarial drug commonly used to prevent and treat malaria. Adverse reactions may vary according to dosage and duration of use, and some patients may experience severe allergic reactions. Patients taking mefloquine should be closely monitored for any adverse effects. It is important to note that chemoprophylaxis does not guarantee 100% protection against malaria. It is therefore important to take additional measures, such as wearing long, light clothing, using insecticide-impregnated mosquito nets, and using repellents.

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