

Clinical Characteristics and Mortality Related with Severe Malaria

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Description

Jungle fever is one of the significant general medical conditions in Mauritania. Malaria is the leading cause of outpatient consultation, hospitalization (35.5%) and mortality in the Sahelian south of the country, where transmission is seasonal (generally from July to October or November). In contrast, Plasmodium infections are more common in the country's Saharan northern region, which includes the capital city of Nouakchott and the oasis city of Atar. Children and adults with malaria have distinct clinical manifestations. Patients may present with mild febrile syndrome or life-threatening conditions such as cerebral malaria, metabolic acidosis, acute renal failure, severe anaemia, pulmonary oedema, or metabolic acidosis. In an unidentified proportion of human populations in an endemic area, malaria infection may also be asymptomatic. A small percentage of malaria infections worldwide result in severe and complicated malaria, mostly in children from Africa. It is difficult to comprehend the pathogenesis-underlying mechanisms. Rapid parenteral administration of antimalarial medications and intensive supportive care are the primary components of the current treatment for severe malaria.

Except for a single case report from Aïoun El Atrouss, there are no published clinical studies on severe malaria in adults in Mauritania, despite the fact that severe malaria cases are common in the Sahelian regions of the country. The purpose of this study was to compare the presenting clinical manifestations and clinical outcome of severe and complicated malaria in adult Mauritians in Kiffa, which is located in southern Mauritania. During the study period, a relatively high prevalence of malaria confirmed by RDT was observed among hospitalized patients. Laboratory-confirmed malaria was found in 61.0% of febrile hospitalized patients (573/939) and severe malaria was found in 17.3% of malaria-infected patients (99/573). Most cases of malaria were discovered during the season of transmission, with only a few cases discovered in January. Due to the fact that earlier data in the region were primarily based on presumptive malaria diagnosis, the current data on malaria prevalence cannot be compared to previous data. However, the findings of this study back up the long-held theory that malaria is the most common reason for outpatient visits and hospitalizations in southern Mauritania [1].

17.3% of RDT-confirmed malaria cases seen at the Kiffa hospital were severe. In Mauritania, there have been very few clinical studies on severe malaria in adults and children. The WHO definition of severe malaria was not used in a previous retrospective study that was conducted in 2000–2002 in Kaédi (Gorgol region), which is located along the Senegal River 230 km (508 km by route) southwest of Kiffa. However, it was reported that severe malaria occurred in 480/722 children and adults with a presumptive diagnosis of malaria and that coma and convulsions occurred in 53/722 and 77/722. Quinine was administered via parenteral route to those patients. (However, since clinical manifestations were not stratified by age in that study and malaria diagnosis was not confirmed in the vast majority of patients, it was difficult to compare the results to those

of the current study. A second study, this one focusing solely on children under the age of 15, was carried out in 2016 in Aoun El Atrouss, which is located 188 kilometres (216 miles) to the east of Kiffa. Due to the differences in patient population (adults vs children) and diagnostic procedures (microscopy or RDT vs. presumptive diagnosis), it is not possible to make a direct comparison between these studies on severe malaria conducted in southern Mauritania (Kiffa, Aoun El Atrouss and Kaédi) [2].

Furthermore, various definitions of severe malaria have frequently been utilized in African studies. Despite these limitations, it is plausible to assert that adults in Mauritania do experience severe malaria, primarily in the southern Sahelian and Saharo-Sahelian regions where *P. falciparum* transmission has been documented for decades. Nouakchott is also home to *P. falciparum* malaria. However, there are no clinical data at this time regarding severe malaria in adults living in Nouakchott. In a similar vein, there is still no evidence that the country's *P. vivax* infection causes severe malaria. Over the course of the study's 41-month period, 99 cases of severe malaria required hospitalization, accounting for 2.3% of all Kiffa hospital admissions. Due to a lack of consistent clinical criteria for distinguishing between uncomplicated and severe malaria, as well as inadequate laboratory resources and testing to confirm the diagnosis of malaria, the prevalence of severe malaria in other parts of the country is unknown. Despite this, it has been estimated that uncomplicated malaria affects 326.2 out of every 100,000 people and severe malaria affects 5.4 out of every 100,000 people in Mauritania each year [3].

In Mauritania, the incidence rate of malaria mortality and the prediction-biased proportion of severe cases treated as in-patients were both estimated to be between 24 and 26 per 100,000 annually. Subjects with a low level of acquired immunity to malaria and those who delay diagnosis and/or treatment are more likely to develop severe malaria. Young children and pregnant women are among the population at risk for severe malaria in endemic areas with persistent and intense transmission, such as many parts of sub-Saharan Africa. Due to acquired immunity, it is generally believed that the majority of adults in areas of persistent and intense transmission are protected from severe forms of malaria. However, recent research published in the 2010s suggests that adults in sub-Saharan Africa who are not pregnant and live in endemic areas may be more susceptible to severe and complicated malaria than previously thought. Although there is a lack of data on severe malaria in adults living in endemic areas who are not pregnant, seasonal malaria transmission occurs in southern Mauritania. Although the number of cases of severe malaria was significantly lower in 2017 than it was in 2016 and 2018, a similar pattern of cases of severe malaria was observed from 2016 to 2019 with a peak in October [4].

The authorities in charge of health ought to be made aware of this finding in order to plan and concentrate medical interventions during this time of year. In this region, public health centres see approximately equal numbers of adults and children with symptomatic, uncomplicated malaria. Due to a lack of reliable data on laboratory-confirmed malaria in the region, it is currently impossible to determine the proportion of adults and children with severe malaria. The majority of the patients lived in suburban areas, where there is less favourable access to health care services, which delays diagnosis and appropriate treatment. Adult patients frequently used self-medication before going to the hospital. It is known that this practice is widespread in Africa. While a trained community health worker's home malaria management may limit or delay the onset of severe malaria, an unsupervised, haphazard practice of self-medication, including self-administration of inappropriate drugs, results in incorrect dosage and treatment duration and delays proper malaria management, causing more harm than good [5].

Prior to being admitted to the hospital for severe malaria, the vast majority of patients in this study visited private medical clinics and were, based on a presumptive diagnosis, treated with low-dose quinine or inappropriate antimalarial medications (chloroquine, sulfadoxine-pyrimethamine). Adults

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Received: 02 January, 2023, Manuscript No: mcce-23-92822; Editor Assigned: 04 January, 2023, Pre-QC No. P-92822; Reviewed: 18 January, 2023, QC No. Q-92822; Revised: 23 January, 2023, Manuscript No: R-92822; Published: 30 January, 2023, DOI: 10.37421/2470-6965.2023.12.202

typically experience clinical manifestations of severe malaria within three to seven days of the onset of symptoms. Patients with severe malaria were admitted to the hospital up to nine days after the onset of symptoms, according to the current study. This delay in diagnosis and treatment contributes to the development of severe malaria. To stop the severity from getting worse, it is evident that quicker diagnostic and therapeutic interventions, as well as easier access to health centres, are necessary.

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How to cite this article: King, Martin. "Clinical Characteristics and Mortality Related with Severe Malaria." *Malar Contr Elimination* 12 (2023): 202.