

MALARIA CONTINUES TO WREAK HAVOC

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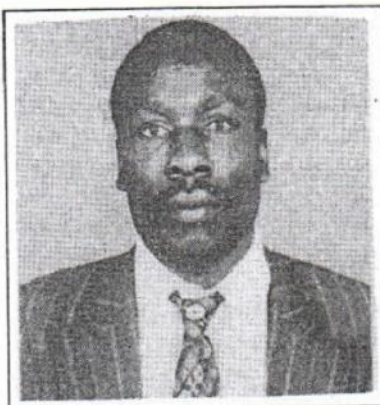
By Dr. Julius A. Ogeng'o

I had been on call the previous night and Tony had offered me a drink that evening. By the time I got home, I was a bit tipsy and definitely exhausted. I had hardly fallen asleep when the phone rang. I quickly picked the receiver and there, was Matron Subira. She sounded panicky and I could not understand what she was doing in the ward at 2.00 a.m. in the morning.

"Doctor, please come and review my husband. He is now in a coma!" Matron said. I recalled having seen him the previous afternoon and treated him for malaria. I had remembered to obtain from him his past medical history — he was neither diabetic, hypertensive with liver disease, nor did he drink alcohol. What could possibly have driven him into this alarming comatose state? I wondered silently. I did not waste time.

When I arrived at the ward, Tom was in a coma, and his temperature was very high. He could not respond to his name and would not localise pain. His blood pressure, bedside urine and blood sugar were normal. The test for meningitis and repeated blood slide for malaria parasites were negative. I quickly started him on treatment for cerebral malaria to which he responded promptly. After the third dose 24 hours later, his temperature had normalised and he had regained consciousness. Four days later, I discharged him, well. The day of his discharge coincided with my turn to present at the monthly mortality meetings.

The afternoon was hot and Dr. Zidika, the consultant physician,



Mr. Ogengo: Complicated forms of malaria arise when the red blood cells invaded by malaria parasites become so sticky and swollen, that they clog and block the small blood vessels

was late. As soon as he had settled, I went ahead. I gave my presentation which led to a tiring discussion which took most of the afternoon. As I was walking home, sister Maneno requested me to review a convulsing child in children's ward. Silingi, the doctor in charge had left and could not be traced. I was slow but by the time I arrived at the ward, the child was still convulsing. When Sister Maneno gave the history, it was obvious that the child had cerebral malaria, whose treatment had been missed for 10 days. My prescription list was long this time but the five-year-old poor boy needed every item on the list. Two weeks later, Dr. Silingi presented the same child. He was then blind and paralysed on one side.

Malaria is today man's most dangerous parasitic disease. It occurs predominantly, though not exclusively, in tropical and sub-tropical regions where it has been directly or indirectly responsible for untold human suffering, and economic deprivation from the beginning of recorded history.

Malaria probably reached its maximum point of dissemination between the years 1900 and 1930 when it affected about 350 million people each year, one to two per cent of whom died.

Today, there are over 100 million cases every year, of which 1 – 2 million die. Unfortunately, Africa suffers 80 per cent of all deaths from malaria, and the disease is responsible for 20 – 30 per cent of all deaths of children under five. In Kenya, the problem is worst in the humid low lying areas of the coastal plains and around Lake Victoria; where it is a major cause of death, accounting for close to 5 to 10 per cent of all deaths. The general facts on malaria have been covered in three previous issues of this magazine viz May/June, 1986; March/April, 1987; April/May, 1990; to which you are referred for your information.

In this article, I shall deal with what I call "complicated" malaria and focus especially on cerebral malaria. The so called complicated forms of malaria arise when the red blood cells invaded by malaria parasites become so sticky and swollen, that they close and block the small blood vessels supplying functional areas of vital organs. The main organs commonly involved include the kidneys, liver, lungs, intestines, placenta and the brain. These are the forms of malaria that commonly cause death. They are medical emergencies and we shall examine them one by one.

Kidneys

Malaria affects the kidneys in two main ways — the invaded Red Blood cells clog and block the blood vessels, and secondly the antibodies (defence proteins) raised against the

malaria antigens (foreign proteins) form antigen-antibody complexes which are deposited in the functional area of the kidney. This complex actuates mechanisms which eventually destroy the normal functional properties of the kidney. Both mechanisms give kidney problems that resemble other causes of kidney disease. You may have been feeling unwell for a few days now but before you see a doctor, your urine is setting scanty, darker, your face appears swollen in the morning and soon your legs also start swelling. Your kidneys have failed. Malaria could make you the very sick man that you become by affecting your kidneys.

Liver

The same mechanism causes liver failure. This child has fever today and refuses to eat. The next day, he is turning yellowish, (jaundiced) very irritable, weak and you feel a mass in the right upper abdomen, painful to touch. The swelling of the legs (oedema) that you may notice in the same child adds to your warning signs. You are right to think the child has liver disease, but this time caused by malaria.

Lungs

Difficulty in breathing and cough accompanying fever is common. Indeed, fever and cough are among the commonest the patient may have a wheeze. While upper respiratory tract infections, pneumonia, asthma, worm infestations are frequent, malaria is not uncommon, particularly in the Lake Basin and coastal belt. When the invaded red blood cells block the small blood vessels and lung oedema develops, the picture gets worse with the patient coughing out blood streaked sputum.

Intestines

Clogging with obstruction of the blood vessels of the intestines in mild forms contributes to the nausea (feeling of wanting to vomit), vomiting and diarrhoea that occur in malaria. This presentation is quite common in children with malaria but adults rarely believe theirs is also due to malaria. In severe forms,

there is severe abdominal pain, vomiting usually of bitter yellowish liquid (due to bile from the liver) and profuse diarrhoea. The stools are commonly bloody and this could be confused with dysentery, cholera, etc.

Placenta

In pregnant women, if the parasitised Red Blood cells block the placental vessels, this jeopardises the circulation to the unborn baby and could lead to abortion, premature delivery or intrauterine death. If the obstruction is not severe enough to lead to pregnancy wastage, there may just be intrauterine foetal growth retardation. Usually, the high fevers that attend acute attacks of malaria also contribute to the unfavourable outcome of the pregnancy.

CEREBRAL MALARIA

For practical purposes, cerebral malaria refers to malaria attacks in which there is central nervous system, usually brain, involvement. However, World Health Organization (WHO) diagnosis of cerebral malaria depends on three criteria i.e. the presence of parasites of *Plasmodium falciparum* in blood; the presence of 'unarousable' coma; the exclusion of other causes of coma, clinically and by laboratory tests. While cerebral malaria is a serious medical emergency and kills all its victims if untreated, aggressive treatment usually leads to full recovery, particularly if given early. Cerebral malaria arises when the Red Blood cells invaded by parasites, stick on and block the small vessels of brain and cut off the supply of glucose and oxygen.

Presentation

The clinical course of cerebral malaria is severe and dramatic. It presents with the following features in different combinations:

- * severe headache
- * very high fever
- * mental confusion, and aggressive behaviour simulating 'madness'
- * restlessness

- * convulsions
- * progressively deteriorating level of consciousness from drowsiness through to coma.

The patient may, for example, flex or localise in response to painful stimuli and any speech would be confused and disorientated. There may be a fixed upward gaze or eyes may be closed, opening only in response to command or pain.

- * pupillary dilation
- * neck stiffness
- * frothy sputum
- * reflexes may be depressed or exaggerated
- * diarrhoea and vomiting
- * the heart rate may be too low or too rapid.

Risk Factors

Cerebral malaria, like the other complicated forms of malaria, is more likely to occur in individuals with low or absent immunity to malaria. These include infants; outside visitors to malaria areas and pregnant women. In areas of continuous malaria transmission; the majority of the indigenous population will have a degree of immunity which is sufficient to prevent the more severe effects of infection unless this immunity has been compromised by some other factor. As immunity depends on persistent low grade infection, the general population in areas of seasonal malaria transmission are also at risk of severe infections as their immunity fluctuates. It is noteworthy, however, that the immune status may be genetically controlled!

Diagnosis

It is possible even for you as a lay man to suspect cerebral malaria, based on the complaints and physical presentation. The presence of coma or psychotic behaviour ('madness') with fever should raise, immediately, the possibility of cerebral malaria in malaria infested areas. In fact in Kenya, any one who develops fever visiting areas around lake Victoria or the coastal regions should be regarded as having malaria till proved otherwise, or unless the cause of fever is obvious. However, malaria can be contacted

nearly anywhere in Kenya though it tends to be uncommon in the highlands including Nairobi.

A fairly reliable test to confirm malaria is to examine blood slides for the parasites. There are, however, situations where the blood slide is negative and yet the patient has malaria. Such situations include among others, the patient having taken anti-malaria treatment, information which the patient's relatives should readily avail to the attending doctor. It is indeed true to say that "A positive blood slide does not mean malaria and neither does a negative blood slide completely rule out malaria". Good doctors usually treat the patient and not laboratory results. So if you trust your doctor, don't start doubting his judgement about your malaria.

Alternative Diagnosis

Not all cases of coma or confusion with fever are due to malaria, even when the blood slide is positive. Other important causes include meningitis, typhoid and any other overwhelming infection, viral, bacterial or parasitic. In fact meningitis cannot always be distinguished from cerebral malaria. Other causes of coma, not usually associated with fever include diabetes melitus, hypertension, chronic renal or liver disease, head injury, alcohol intoxication, poison ingestion or stroke, etc.

It is based on this host of alternative diagnosis that the doctors usually obtain a very detailed history and take several samples of different specimens from a patient suspected to have cerebral malaria. Lumbar puncture, (withdrawing some of the fluid that bathes the brain from the lower back); skull and chest X-rays, when done together with blood and urine sugar, urea and electrolytes and Blood Pressure measurements, commonly yield useful information.

Treatment

Complicated malaria, and particularly cerebral malaria is a medical emergency to be handled in hospital and not at home on prayers and herbs. The regimes will vary from one centre to another but Quinine in

dextrose by slow infusion is recommended in the initial phase till the patient can take oral medication. Together with Quinine, supportive treatment is given, such as intravenous fluids, blood transfusion, and intravenous multivitamins.

Convulsions, if they occur, must be controlled at once. Anti-fever drugs may be given in addition to Tepid sponging if the fever is high. General good nursing care is given appropriately according to the level of consciousness. It is important that the patients are re-evaluated as frequently as possible and this underlines the importance of hospital treatment. The response to Quinine is excellent if started early. Even comatose patients may regain consciousness after or even during the first dose.

Complications

Complications are common and result in worse outcome than uncomplicated cerebral malaria. When they occur, their treatment must promptly and aggressively accompany Quinine. Common on the list are pneumonia, lung oedema, bronchitis, respiratory distress; convulsions; kidney failure; disseminated intravascular coagulation (generalised clotting of blood within the vessels); too little circulating blood volume (circulatory collapse) and septicaemia (multiplying bacteria in blood).

Outcome

There are three results of cerebral malaria and its complications; the patient can recover fully, recover with residual disability or die. The outcome depends on whether or not treatment is given, and if given, how soon. Generally speaking, the earlier the treatment, the better the outcome. Response to treatment as we have noted, is prompt, unless it is too delayed or the diagnosis is wrong. Common residual disabilities include hyperactivity and recurrent fits. Most of these tend to subside with time but occupational therapists and physiotherapists are usually called to assist in rehabilitation. Although re-infection the first 28 days after treatment is frequent, recurrence of cerebral malaria after complete treatment is rare.

Conclusion

Cerebral malaria is a potentially lethal complication of severe infection by plasmodium falciparum. Prevention and/or early recognition and appropriate treatment of the disease and its complications dramatically reduces the chances of death or disability. We can all contribute by preventing infection, and when we can't, by recognizing the disease early, seeking appropriate hospital treatment, and complying with the doctor's instructions. You could make your contribution by sharing this knowledge!

Single Parenthood

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single parents unconsciously, and tends to come up as other problems, during counselling. When handling such cases, Mr. Ikiugo explained that he always tries to raise the persons awareness to what she perceives as problem. Once the person is aware that the root cause of the problem is the fear of rejection by the society which is unconsciously nagging, they are able to come to terms with the problem and they can therefore control it or make a conscious

decision not to allow this feeling to affect them.

The challenges of single parenthood are quite many, and therefore one should consider the odds before deciding to become a single parent. But again, is marriage the solution? As a Dutch social worker once said, "People often think negatively about being single, but there are advantages as well. You have an opportunity to develop your own personality. If you marry, and have children, you may not have time for that".