

Report

Malaria: a question of an etiological role in diabetes mellitus

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Introduction

Malaria (due to *Plasmodium falciparum*) is the most common cause of morbidity in Sudan. The usual manifestation of malaria is of an acute febrile illness. Other presentations such as anaemia, renal failure or gastroenteritis are encountered. Classical symptoms of diabetes mellitus such as polyuria and polydipsia are not known manifestations of malaria. For diabetologists, malaria is a well known precipitant of diabetic ketoacidosis. To our knowledge there is no reported causal association between malaria and diabetes mellitus. We report here eight cases of newly diagnosed diabetes mellitus which occurred in patients with acute attacks of malaria (*P. falciparum*) reported to the outpatient clinic in Medani Teaching Hospital, Sudan between March and September 1998. The total number of malarial cases seen in the same period was 724.

Report of cases

Of the eight patients, six were males; the mean age was 42 years (range: 35–52 years) and all cases were from one geographical area. All the patients presented with a simple febrile illness (mean tempera-

ture: 39.8 °C), and malaria was confirmed by positive blood films with the ring stage seen in all patients. With the onset of fever, the patients complained of polyuria and polydipsia and were thus investigated for diabetes mellitus. Family history and known risk factors of diabetes, such as diabetogenic drugs and obesity, were excluded. No significant abnormalities were detected on examination. The diagnosis of diabetes was confirmed in the eight patients by a glucose tolerance test (GTT). We followed the diagnostic criteria of the World Health Organization [1]. The mean fasting blood glucose in our patients was 9.8 mmol/L (range: 8.7–12.6 mmol/L).

The malaria rapidly responded to chloroquine and we started the antidiabetic treatment of our patients with insulin. Regular assessment of the glycaemic control was carried out. A second GTT performed 2 months after the onset of malaria confirmed the persistence of diabetes mellitus in the patients.

Discussion

In African patients there is general agreement on the role of some environmental factors, such as diet and viral infections, in the causation of diabetes mellitus [2] but

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malaria has not been considered as a factor. Of course, stress in patients with malaria may induce hyperglycaemia, but the diagnostic GTT and the persistence of hyperglycaemia after curing the malaria clearly excluded this possibility. There may be malaria-induced pancreatic damage and hence secondary diabetes mellitus, but we could not detect steatorrhoea, a typical abdominal pain or pancreatic calcification in the patients.

Conclusion

It is difficult from such a limited study to suggest a role for malaria in the etiology of diabetes mellitus. We recommend a large-scale survey of glucose tolerance in patients with malaria and suggest that future studies include younger patients (< 20 years) because type II diabetes mellitus usually occurs in older patients.

References

1. *Diabetes mellitus. Report of a World Health Organization Study Group.* Geneva, World Health Organization, 1985 (Technical Report Series, No. 727).
2. Oll JM. Diabetes mellitus in Africans. *Journal of the Royal College of Physicians*, 1983, 17:225-7.

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