came from the Aids clinic that the hospital runs. It is therefore suggested that in countries where the Aids scourge is rampant oesophageal candidiasis should be kept in mind.

The prevalence of normal endoscopies was rather high. This is expected since there are some UGI diseases, which cannot be conclusively diagnosed by using endoscopy only. These include motility disorders as well as non-specific dyspepsia, which are associated with structures originating from fore gut analogue. Besides, there are a number of pyschologic diseases, which may present as dyspepsia. These findings are similar to those of Missalek *et al.*[10]. Most of our patients were young adults with a mean age of 35.6 years and in other series young patients were found to have high prevalence of normal endoscopy[11].

What this study shows is that clinicians do not seem to be aware of the prevalence of these diseases in this area.

## Conclusion

The variety of UGI diseases which exist in rural Africa justify setting up an endoscopy unit if funds allow. This would reduce the high cost of treating most patients assuming they have a peptic ulcer with unsatisfactory results. With the emergence of HIV infection oesophageal candidiasis should be kept in mind and treated promptly.

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# Ineffectiveness of chloroquine antenatal prophylaxis in East of Democratic Republic of Congo (RDC)


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## Introduction

In sub-Saharan Africa, malaria is one of the main public health problems. The World Health Organization (WHO) recommends routine malaria drug prophylaxis throughout pregnancy in endemic areas[1]. In the Democratic Republic of Congo, despite the emergence of chloroquine-resistant *Plasmodium falciparum* strains in East Africa and known difficulties with compliance[2], the prophylactic scheme is based on an initial curative dose of chloroquine, followed by weekly prophylactic doses until delivery.

## Methods

To assess the current effectiveness of chloroquine prophylaxis and to compare its benefits when given either early or late, 621 women attending antenatal clinics in the Rutshuru District (Northern Kivu) were included at their first visit in either a second or third trimester prophylaxis group, depending on gestation. They received a supply of chloroquine tablets with instructions to self-administer 300 mg weekly until delivery. Blood and placental biopsy specimens were taken at delivery. Results were compared with a group of women ($n=61$) without malaria prophylaxis.

## Results

The maternal and newborn outcomes did not differ between the two groups (Table 1): 26.3% versus 27.4% had circulating malaria parasite (95% confidence interval [CI] of difference = −7.3–9.5%) at the time of delivery, 29.5% versus 30.2% had malaria-associated placental lesions (95% CI of difference = −8.9–10.2%), 57.5% versus 51.9% had a haemoglobin <11 g/dL (95% CI of difference = −3.8–15.0%), 13% versus 13.1% had low birth weight infants (95% CI of difference = −6.2–6.2%)

**Table 1** Means and proportions of maternal and newborn results at delivery in those treated for malaria and the non-treated groups

| | *Early treated* N *[mean (SD)] or (%)* | *Late treated* N *[mean (SD)] or (%)* | P | *Not treated* N *[mean (SD)] or (%)* | P* |
|---|---|---|---|---|---|
| Mother | | | | | |
| Number of treatments | 323 [4] | 297 [2] | <0.001† | – – | – |
| First visit-delivery (weeks) | 250 [16.0] (3.9) | 227 [8.6] (3.5) | <0.001 | – – | – |
| Last visit-delivery (weeks) | 241 [4.5] (4.2) | 216 [3.4] (2.5) | 0.001 | – – | – |
| Malaria associated fever (%) | 323 [11.8] | 298 [9.1] | NS | – – | – |
| Arm circumference (cm) | 249 [24.7] (2.0) | 223 [24.9] (2.1) | NS | 61 [24.9] (2.6) | NS |
| Haemoglobin (%) < 11 g/dL | 214 [57.5] | 212 [51.9] | NS | 60 [41.7] | NS |
| Circulating malaria parasites (%) | 213 [26.3] | 212 [27.4] | NS | 61 [29.5] | NS |
| MAPL (%) | 188 [29.5] | 172 [30.2] | NS | 22 [50] | 0.044 |
| New born | | | | | |
| Weight (kg) | 246 [2.9] (0.5) | 221 [3.0] (0.5) | NS | 61 [2.8] (0.6) | NS |
| Low birth weight (%) | 246 [13] | 221 [13.1] | NS | 61 [18] | NS |
| Height (cm) | 214 [45.8] (2.7) | 212 [46.2] (2.5) | NS | 61 [45.9] (3.9) | NS |
| Head circumference (cm) | 214 [33.4] (2.0) | 212 [33.5] (2.0) | NS | 61 [33.0] (3.9) | NS |
| Death (%) | 252 [4.4] | 222 [2.7] | NS | 61 [3.3] | NS |

*Comparison is made with treated groups gathered together
†Medians – Mann–Whitney test
SD=Standard deviation; MAPL=malaria-associated placental lesion

and 4.4% versus 2.7% of infants were stillborn (95% CI of difference = −1.6–5.0%). Proportions of malaria-associated fever were similar in the two groups. The compliance decreased with the number of months between first visit and delivery ($P<0.001$). No women from the early group who had an opportunity to receive six prophylactic treatments ($n=12$) actually received all six. The proportion of low birth weight decreased from 21.9% for one treatment to 5.6% for five compliant treatments ($\chi^2$ for trend: $P=0.058$). After adjustment for age, parity and education, which differed significantly between the groups, neither the treatment group nor the number of compliant treatments received was associated with any one of the outcomes. The outcomes in the treated group were similar to that of the non-treated group, except for the proportion of malaria-associated placental lesions that was lower in the treated group (see Table 1).

## Discussion

Two main factors which may explain the poor effectiveness of chloroquine prophylaxis are a resistance of *P. falciparum* to chloroquine and a bad observance of treatment.

This is the first report evaluating chloroquine resistance in Northern Kivu. However, about 10% of 'protected women' from the two groups presented with malaria associated fever. This suggests that chloroquine resistance is present in the northern areas of Kivu several years after cases were first observed in Southern Kivu[3,4]. In spite of all efforts, including systematic visits at home, 33.1% (158/477) of mothers missed their appointments. The non-observance of weekly dose resulted in non-effective plasma drug level[5]. In addition, where self-medication was the principal alternative to low accessibility of health services (only 0.3 contact/year/inhabitant in Rutshuru district), a part of the drug dose was probably used to treat patients' relatives.

## Conclusion

These results indicate a more than likely absence of effectiveness of the current strategy based on chloroquine prophylaxis given at any time during pregnancy in the Rutshuru district and urge for an alternative strategy against malaria.

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