Document heading

*Plasmodium falciparum* hyperparasitaemia in Nigerian children: epidemiology, clinical characteristics, and therapeutic responses to oral artemisinin-based combination treatments

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Abstract

Objective

To evaluate the epidemiology, clinical characteristics and response to oral artemisinin-based combination treatments (ACTs) of children with *Plasmodium falciparum* hyperparasitaemia (*PfHP*).

Methods

All children with febrile or history of febrile illness who were suspected to be malaria were evaluated for the presence of *PfHP* and their parasitological and clinical characteristics at presentation and follow-up for four weeks were recorded during a 3-year period. Patients were treated with oral artemisinin-based combination drugs.

Results
PfHP was present in 3% (97/3,338) of parasite-positive children, and with no seasonal variation. The proportion of children with PfHP increased significantly over the years (P =0.001). Compared with non-hyperparasitaemic children, hyperparasitaemic children were younger, had significantly shorter duration of illness, and higher core temperature on presentation (P =0.04, 0.04, <0.0001, respectively). Parasite clearance and half-lives of parasitaemia were similar in both groups of children following treatment with artemether-lumefantrine or artesunate-amodiaquine but half-life of parasitaemia increased significantly as parasite clearance time increased (P <0.0001). The proportions of children in which there was no change in haematocrit following treatment with these drugs were similar (65% vs 76%, P =0.09), but fall in haematocrit/1,000 parasites cleared from peripheral blood was 10-fold higher in patients without hyperparasitaemia suggesting that artemether-lumefantrine or artesunate-amodiaquine may conserve haematocrit in children with hyperparasitaemia. Recrudescent infections were significantly more common in hyperparasitaemic children (P =0.014).
Conclusions

PfHP is common in young malarious Nigerian children, and severe malaria which is in the absence of other features responds promptly to oral ACTs.

Keywords

- Malaria;
- Hyperparasitaemia;
- Epidemiology;
- Artemisinin-based combination Treatments;
- Children;
- Nigeria;
- *Plasmodium falciparum*;
- Clinical characteristics;
- Therapeutic reponse;
- Seasonal variation;
- Haematocrit;
- Recrudescent infection;
- ACTs

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