SUMMARY

Background

Although the transmission blocking properties of Antimalarials are not often a priority of case management of malaria, emerging threats of resistance to Artemisinins (in ACTs) used as recommended first line drugs globally have re-ignited interest in developing novel strategies in malaria control efforts. Drugs that kill or inhibit sexual stages of plasmodium could potentially amplify or synergise the impact of other interventions by blocking transmission to mosquitoes. Primaquine have long offered such potential but safety concerns have limited its use.

Aim

This study was aimed at assessing the effect of Primaquine on gametocyte carriage in the treatment of uncomplicated falciparum malaria with Dihydroartemisinin-Piperaquine (DHP) with the overall purpose of possibly recommending it as an adjunct drug for Artemisininbased combination therapy (ACT) for malaria control.

Methods

A two-arm randomized blinded controlled clinical trial to evaluate the efficacy and safety of a single-dose Primaquine (0.75mg/kg) following treatment with DihydroartemisininPiperaquine (DHP) on Plasmodium falciparum gametocytemia was conducted in a Primary health facility in Vom, Plateau state.

A total of 181 patients with uncomplicated falciparum malaria, normal G6PD enzyme levels, and haemoglobin levels ≥8 g/dL were assigned either to a standard 3-day course of DHP alone (n = 88) or DHP combined with a single dose of Primaquine on day 3 (n = 93). After obtaining relevant information using a structured questionnaire, patients were seen on days 1, 3, and 7 and then weekly for 28 days to assess the presence of gametocytes and asexual parasites by microscopy. Survival analysis was stratified by the presence of gametocytes on day 3.

The data was analysed using Epi info version 7.1.5.

Results

DHP prevented development of gametocytes in 132 patients without gametocytes on day 3. In the gametocytemic patients (n = 49), Primaquine was associated with faster gametocyte clearance and reduced
incidence of gametocyte development ($p = 0.013$). The day 28 cure rate of asexual stages in the DHP + Primaquine and DHP-only arms was 100% for both.

Primaquine was well tolerated.

**Conclusion**

Addition of single-dose 0.75 mg/kg Primaquine was associated with reduced gametocyte carriage as a result of faster gametocyte clearance and lower incidence of gametocyte development in DHP-treated patients. Primaquine was both efficacious and safe in patients with uncomplicated malaria and normal G6PD function. Thus, Primaquine as gametocytocidal drug may be useful in combination with an ACT regimen to clear gametocytes and thereby interrupt malaria transmission to mosquito vector more effectively than ACT alone.