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### Evaluation of Asymptomatic Malaria Antigenaemia and Parasitaemia in Human Immunodeficiency Virus-Infected Children in Benin City, Nigeria

*Évaluation de l'Antigénémie et de la Parasitémie du Paludisme Asymptomatique chez les Enfants Infectés par le Virus de l'Immuno-déficience Humaine à Benin City, au Nigeria*

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#### ABSTRACT

**BACKGROUND:** Malaria and HIV/AIDS are rampant in sub-Saharan Africa with prevalence of one reinforcing the other and control of one impactful on control of the other. Malaria parasitaemia (MP) prevalence is increased in HIV-infected individuals while certain drugs used in latter cause decline in MP but it is uncertain how they affect malaria antigenaemia (MA). How certain bio-social and disease characteristics affect MA and MP in this cohort is unknown.

**OBJECTIVES:** To determine prevalence of asymptomatic MP and MA and their clinical and social determinants in HIV-infected children.

**METHODS:** In a prospective cross-sectional study carried out at the University of Benin Teaching Hospital (April to June 2016), 221 HIV-infected children (aged 1–17years) asymptomatic for malaria and 221 apparently healthy HIV-negative controls were studied. MA was assessed using rapid diagnostic test while MP was evaluated using microscopy. Standard method was used to determine parasite count.

**RESULTS:** Prevalence of asymptomatic MP was 24.4% in subjects and 17.6% in controls while MA prevalence in subjects and controls were comparable (20.8% vs 18.1%). Malaria parasitaemia rate (MP<sub>r</sub>) of 24.4% was higher than malaria antigenaemia rate (MA<sub>r</sub>) (20.8%). MP and MA rates were independent of socioeconomic status, access to anti-retroviral drugs, their duration of use and clinical disease stage.

**CONCLUSION:** MA occurred frequently enough to warrant its use as malaria case definition surrogate in asymptomatic children with HIV/AIDS receiving trimethoprim-sulfamethoxazole prophylaxis and protease inhibitors. **WAJM 2022; 39(1): 45–51.**

**Keywords:** Malaria, Antigenaemia, Parasitaemia, HIV infected children, Benin City.

#### RÉSUMÉ

**CONTEXTE:** Le paludisme et le VIH / SIDA sont endémiques en Afrique subsaharienne, la prévalence de l'un renforçant l'autre et le contrôle de l'un ayant un impact sur le contrôle de l'autre. La prévalence de la parasitémie du paludisme (MP) est augmentée chez les personnes infectées par le VIH, tandis que certains médicaments utilisés dans ces derniers entraînent une baisse de la MP, mais on ignore comment ils affectent l'antigénémie du paludisme (AM). On ne sait pas comment certaines caractéristiques biosociales et pathologiques affectent l'AMM et la MP dans cette cohorte.

**OBJECTIFS:** Déterminer la prévalence de la MP et de l'AMM et leurs déterminants cliniques-sociaux chez les enfants infectés par le VIH.

**METHODES:** Dans une étude transversale prospective menée à l'hôpital universitaire de l'Université du Bénin (avril et juin 2016), 221 enfants infectés par le VIH (âgés de 1 à 17 ans) asymptomatiques pour le paludisme et 221 témoins séronégatifs apparemment en bonne santé ont été étudiés. La MA a été évaluée à l'aide d'un test de diagnostic rapide tandis que la MP a été évaluée à l'aide de la microscopie à coloration de Giemsa. La méthode standard a été utilisée pour déterminer le nombre de parasites.

**RESULTATS:** La prévalence de la MP asymptomatique était de 24,4% chez les sujets et de 17,6% chez les témoins, tandis que la prévalence de l'AM chez les sujets et les témoins était comparable (20,8% vs 18,1%). Le taux de parasitémie du paludisme (MP<sub>r</sub>) de 24,4% était plus élevé que le taux d'antigénémie du paludisme (MA<sub>r</sub>) (20,8%). Les taux de MP et d'AM étaient indépendants du statut socio-économique, de l'accès aux médicaments antirétroviraux, de leur durée d'utilisation et du stade clinique de la maladie.

**CONCLUSION:** l'AMM est survenue suffisamment fréquemment pour justifier son utilisation comme substitut de la définition de cas dans la prise en charge de ces sujets, étant donné l'implication de la parasitémie dans la physiopathologie et la virulence du VIH. **WAJM 2022; 39(1): 45–51.**

**Mots clés:** Paludisme, Antigénémie, Parasitémie, Enfants infectés par le VIH, Benin City.

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Abbreviations: MA, Malaria Antigenaemia; MP, Malaria Parasitaemia.