Public health emergencies

PO - (8609) - PREVALENCE AND RISK FACTORS FOR GLUCOSE-6-PHOSPHATE DEHYDROGENASE (G6PD) DEFICIENCY IN TWO P. VIVAX MALARIA ENDEMIC AREAS IN SUDAN

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Background: Plasmodium vivax malaria is a major health problem in Sudan and the parasite has become widely distributed in the recent years. The WHO recommends the use of primaquine as radical cure for liver dormant stage, the hypnozoite. However, prior to its use testing of Glucose-6-phosphate Dehydrogenase (G6PD) should be performed. The objective of the current study was to determine prevalence and risk factors for G6PD deficiency in two P. vivax malaria endemic areas in Sudan.

Methods: A cross-sectional study recruiting 557 subjects from two malaria endemic areas in Sudan was conducted. Demographic data and blood samples were collected. G6PD activity was measured by spectrometry using SPINREACT enzymatic-UV kit.

Results: The measured G6PD activities for both sites ranged from 0.6 to 37.7 U/g Hb, with a median value of 12.8 U/g Hb. There was a significant difference in enzyme activity by study site (p < 0.001), but not by sex (p = 0.91). Overall, across the two study sites, 22 (3.9%) is G6PDd (< 30%). Prevalence of G6PDd (< 30%) in Khartoum is 1.8% (4/230) compared to 4.8% (16/327) in New Hafla. In univariate analysis predictors of G6PDd were study site (odds ratio of G6PD activity < 3.8, Khartoum relative to New Hafla = 0.22 (95% CI: 0.08 to 0.66), p = 0.006), and recent antibiotic use (OR = 2.45 (95% CI: 1.1 to 5.5), p = 0.027). In multivariate analysis, the only factor that was significant was the individual's weight in kilograms, with an OR of 0.97 (95% CI 0.95 to 0.99), p = 0.014.

Conclusion: G6PD deficiency is less prevalent among Sudanese population and indicates that the use of primaquine for radical cure for P. vivax malaria is safe.