Impact of glucose-6-phosphate dehydrogenase deficiency on dengue infection in Myanmar childrened protocol

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ABSTRACT

Glucose-6-phosphate dehydrogenase (G6PD) deficiency may affect the clinical presentation of dengue due to the altered redox state in immune cells. We aimed to determine the association between G6PD deficiency and severity of dengue infection in paediatric patients in Myanmar. A cross-sectional study was conducted among paediatric patients aged 2–13 years with dengue in Yankin Children Hospital, Myanmar. One hundred and ninety-six patients positive for dengue infection, as determined via PCR or ELISA, were enrolled. Dengue severity was determined according to the 2009 WHO classification guidelines. Spectrophotometric assays determined G6PD levels. The adjusted median G6PD value of males in the study population was used to define various cut-off points according to the WHO classification guidelines. G6PD genotyping for Mahidol, Kaiping and Mediterranean mutations was done for 128 out of 196 samples by real-time multiplex PCR. 51 out 196 patients (26.0%) had severe dengue. The prevalence of G6PD phenotype deficiency (< 60% activity) in paediatric patients was 14.8% (29/196), specifically, 13.6% (14/103) in males and 16.2% (15/93) in females. Severe deficiency (< 10% activity) accounted for 7.1% (14/196) of our cohort, occurring 11.7% (12/103) in males and 2.2% (2/93) in females. Among 128 samples genotyped, the G6PD gene mutations were detected in 19.5% (25/128) of patients, with 20.3% (13/ 64) in males and 18.8% (12/64) in females. The G6PD Mahidol mutation was 96% (24/25) while the G6PD Kaiping mutation was 4% (1/25). Severe dengue was not associated with G6PD enzyme deficiency or presence of the G6PD gene mutation. Thus, no association between G6PD deficiency and dengue severity could be detected.

EXTERNAL LINK

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