ORT_23 - Identification of recent and past Parvovirus B19 infection in malaria patients living in the Amazon region, Brazil

Ester dos Santos Motta[2]; Ricardo Luiz Dantas Machado[2]; Arthur Daniel Rocha Alves[1]; Luciane Almeida Amado Leon[1]; Margarete do Socorro Mendonça Gomes[3]; Rubens Alex de Oliveira Menezes[4]; Rita de Cássia Nasser Cubel Garcia[2].
[1]Fundação Oswaldo Cruz (Fiocruz)
[2]UFF - Universidade Federal Fluminense
[3]Superintendência de Vigilância em Saúde do Estado do Amapá
[4]Universidade Federal do Amapá

Introduction: Parvovirus B19 (B19V) infection was found to contribute to the worsening of anemia among children living in a malaria falciparum-endemic region. High seroprevalence rates of B19 IgG in young children have been detected in these areas. The effect of B19V coinfection in malaria caused by *P. vivax* in Brazil has not been determined yet. So, accurate diagnosis is essential.

Objectives: The aim of this study was to perform the serological and molecular diagnosis of B19V infection in malaria-vivax patients living in the Amazon region.

Methodology: A total of 152 sera collected during 2014-2015 in the municipality of Oiapoque, Amapá State, were tested for B19V IgM and IgG using a commercial enzyme immunoassay (EIA) (Serion, Brasil). Those sera that yielded IgM inconclusive results were examined by IgG avidity EIA. B19V-DNA detection was performed by conventional PCR (cPCR) using primers P1F/P6R (nt 1399-1682) for the non-structural region. Those samples that tested IgM positive or IgM/IgG negative were submitted to real time PCR (qPCR).

Results: By EIA, 74 sera tested B19V IgM positive, 69 IgM negative and nine were treated as inderteminate. Eight IgM negative sera tested positive by cPCR and/or qPCR. B19V IgG of low avidity was detected in four of the nine sera with inconclusive IgM results. Using both EIA and PCR, recent B19V infection was diagnosed in approximately 60% (87/152) of the patients. The viral load ranged from 1.39×10^4 to 5.53×10^6 IU/mL (mean, $3.0^5 \times 10^5$ IU/mL). Overall, B19V IgG antibodies were detected in 76,3% (116/152) of the serum samples. Antibody prevalence increased with age, rose from 43% in children of 7-9 years to almost 90% in those aged > 50 years Among the B19V IgG positive sera, 32% (52/152) were representative of past infection. It was not possible to determine the status of infection for 3,3% (5/152) of the patients. Eigth sera (5,2%) were found negative by both EIA and PCR.

Conclusion: As also demonstrated by others, our results corroborate that more than one test should be necessary for correct discrimination of past from recent B19V infection. This study has described for the first time the prevalence of B19V IgG antibodies among patients with malaria vivax in Brazil.

Keywords: Parvovirus B19, laboratorial diagnosis, malaria-vivax