

## Viremia, immune status and demographic factors associated with disease severity during two epidemics of DENV-2 in Rio de Janeiro, Brazil

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The state of Rio de Janeiro was marked by extensive dengue epidemics, resulting from introduction of DENV-1 in 1986, DENV-2 in 1990, DENV-3 in 2000 and DENV-4 in 2011. Since the introduction of DENV-2 American/Asian genotype, two additional outbreaks occurred in 1990 and 2008. The 2008 epidemic was considered the greatest in magnitude in Brazil in number of cases, disease severity and high case-fatality rates. Considering the distinct epidemiological features of 1990 and 2008 DENV-2 epidemics, we investigated virological, immunological and demographic factors as a possible determinant to the pathogenic pattern of 2008 epidemic. The level of plasma dengue viral load was assessed in 102 DENV-2 cases from 1990 and 2008 epidemics using qRT-PCR. Results were correlated with the following variables: disease severity, days of illness, age, gender and immune response. In our cohort, no statistical correlation with level of viremia versus age, days of illness and immune status was found in samples from both epidemics. However, plasma viral load of cases from 2008 ( $7.10 \times 10^6$  RNA/mL) were higher than those of 1990 ( $4.70 \times 10^4$  RNA/mL),  $p = 0.001$ . Sequencing analysis of samples from both epidemics confirmed the American/Asian genotype in samples from 1990 and 2008 and identified a new lineage of DENV-2 in 2008. This study demonstrated that in 2008 epidemic high levels of virus were associated with disease severity. The detection of a new lineage of DENV-2 in 2008 deserves more studies to investigate whether this lineage is more virulent and have contributed to the pathogenic profile of 2008 epidemic.

### Biography

Priscila Nunes completed her Mastership in 2012 at the age of 25 and currently is a PhD student at the Flavivirus Laboratory, Oswaldo Cruz Institute, Regional Reference Laboratory for Dengue and Yellow Fever Diagnosis, for the Brazilian Ministry of Health. She has experience on molecular biology techniques and currently works on dengue viruses detection by implementing new methodologies.

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