GENETIC AND BIOLOGICAL CHARACTERIZATION OF HIV-1 SUBTYPE C ISOLATES FROM BRAZIL

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Resumo:
Considering the genetic forms of HIV-1, the subtype C is the most prevalent, with 56% of infections worldwide. This figure suggests that this subtype may present particular features in its spreading ability. Indeed, differences in molecular and biological features between subtype C and others subtypes were reported. Thus, we investigated the genetic and biological diversity of HIV-1 subtype C strains circulating in Brazil. We obtained 22 blood samples collected from drug-naive HIV-1 infected individuals from Porto Alegre, RS. For molecular characterization, the *env* and *gag* regions were amplified by nested PCR and products were submitted to HMA subtyping and DNA sequencing. The sequences were submitted to phylogenetic analysis. To examine the cell tropism and the virus ability to form syncytia, primary macrophages and the CD4+ T cell lines (MT-2, Sup-T1 and PM-1) were infected with these viruses. The coreceptor usage was investigated by infecting U87 cells transfected with CD4 and chemokine receptors. The molecular characterization of *env* showed the presence of 15 subtype B, 6 subtype C and 1 subtype F samples. The *gag* characterization showed 10 subtype B, 11 subtype C and 1 subtype F samples. A high proportion of potencial recombinant forms was observed. Out of 22 samples, we isolated 16 viral specimens. So far, 5 subtype C and 2 B/C isolates were tested for biological properties. All isolates replicated well in macrophages. Among the subtype C isolates, 4 did not infect or form syncytia when exposed to MT-2 and Sup-T1 cell lines, while the other C virus and the 2 recombinants infected and induced syncytia in these cells. All isolates were capable to form syncytia in PM-1 cells. The 4 NSI subtype C isolates infected only U87 CCR5+ cells, whereas the one SI subtype C isolate and the recombinants used both CCR5 and CXCR4. Our results showed the predominance of subtype C isolates that preferentially use CCR5 as coreceptor for viral infection. These are in agreement with asymptomatic clinical status of the patients at the time of virus isolation. Our findings show that Brazilian subtype C isolates are phenotypically similar to those prevalent in other regions.

Palavras-chave:
1: HIV-1
2: subtype C
3: coreceptor

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