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VIROLOGIA

SEROPREVALENCE OF COXSACKIEVIRUS B1-6 IN AN ITALIAN POPULATION

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INTRODUZIONE

Type B Coxsackieviruses (CVB) include 6 serotypes (CVB1-6) that may be responsible for a wide range of clinical diseases, including hand, foot and mouth disease, aseptic meningitis, acute flaccid paralysis, pancreatitis, myocarditis and pericarditis. CVB infection has also been proposed as a trigger for the onset of insulin-dependent diabetes. The aim of our work was to investigate CVB seroprevalence in an Italian population, since seroepidemiologic data on CVB are very limited and the last Italian work about this topic dates back to 1991.

METODI

We retrospectively included in this study 2459 subjects referring to Umberto I University Hospital (Rome) from 2004 to 2016. Sera were screened with a micro-neutralization assay to detect neutralizing antibodies (nAb) against each of the 6 CVB types. An antibody titer ≥ 1:32 was considered as a positive result. Seroprevalence, geometric mean titers and 95% confidence intervals were calculated. Seroprevalence rates, nAb titers and seroprevalence trends were analyzed using the chi-squared and Mann–Whitney tests and the chi-squared test for trend. P-values <0.05 were considered statistically significant.

RISULTATI

Positivity for at least one serotype was detected in 69.1% of individuals. Overall, the prevalent serotype was B4 (45.2%), followed by B3 (33.3%) and B5 (26.2%). Lower seroprevalence was observed for B1 (12.7%), B2 (11.0%) and B6 (1.7%). B3 and B4 showed nAb levels significantly higher compared to other viruses. For B2 a great variation in seroprevalence over time was observed, as it was the most prevalent serotype in 2004 (64.8%) but had a significant and progressive decrease in positivity in 2005 and 2006 (50.5%, 31.2%), settling at prevalence rates under 8.1% from 2007 to 2016. B1, B3, B4 and B5 showed cyclical trends of seroprevalence, with one or more years of higher values followed by periods of lower positivity rates. In female individuals the percentage of seropositivity was higher than in males. Positivity to at least one virus was 25.2% in children aged 0-2 years, but significantly increased in pre-school (3-5 yr) (50.3%) and school (6-10 yr) children (70.4%), together with the number of children having experienced infection with more than one virus. The age-related increase in seroprevalence is significant also analyzing B1-B5 specific seroprevalence. A higher production of B3 and B4 nAb was observed in children of 3-5 years of age.

CONCLUSIONI

CVB prevalence in our population is high, with B4 and B3 being the most seroprevalent viruses. Type-specific variations in prevalence over time were observed, reflecting the fluctuations in circulation typical of Enteroviruses.