Maria Borsanyiova et al., J Antivir Antiretrovir 2017, 9:3 (Suppl)
DOI: 10.4172/1948-5964-C1-037

Evaluating the use of swabs sample collection for molecular diagnosis of enteroviruses

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Statement of the Problem: Coxsackieviruses B (CVB) are associated with asymptomatic, acute and number of chronic inflammatory diseases. Based on the clinical manifestations, nasal, throat or rectal swabs are collected for enteroviral diagnosis. Traditional method makes use of the clinical sampling swabs with virus transport medium (VTM) to ensure the stability of the viral genome. Molecular diagnostic tests may not require the VTM.

Aim: The purpose of this study is to evaluate swabs consisting of different material: synthetic nylon swabs with plastic sticks, cotton swabs with wooden sticks without VTM and swabs with the VTM.

Methodology & Theoretical Orientation: We have made a systematic comparison of different types of swabs. For evaluation, the swabs were dipped in different serial dilutions of CVB3-Nancy strain, stored as follows in 3 sets: Set (1) processed immediately; Set (2) frozen at -80°C and had three groups a) processed after 12 days, b) 1 month and c) 2 months; Set (3) stored at + 4°C (and processed after 12 days). Viral RNA was isolated and detected in the processed suspension (made by vortexing the swabs in 500 µl RNAse free water).

Findings: The results show a possibility of using swabs without VTM for diagnostics and epidemiological purposes for identifying the enteroviral infections by PCR.

Conclusion & Significance: All three types of swabs can be used. Presently the cotton tip swabs are not much in use in diagnostic and clinical laboratories; however their positivity was higher when compared to polyester tipped plastic swabs. Best option for swabs without VTM observed was freezing the swabs at -80°C, but viral RNA was also detectable after storage for 12 days up to 4°C. The use of swabs without transport medium will be suitable for diagnosis/screening of EV infections. Detection of viral RNA after storage depends on virus concentration.

Biography

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