COMPARISON OF THREE RAPID IMMUNOASSAYS FOR THE DETECTION OF ROTAVIRUS ANTIGEN IN STOOL SAMPLES

I. Van der Donck, A. Lemmens, F. Struyf, and M. Van Ranst
Laboratory of Virology, University Hospitals and Rega Institute, Leuven, Belgium

Rotaviruses are the most frequent cause of gastroenteritis in infants. An etiological diagnosis of the disease is made by identification of the virus in a stool sample. Fast and accurate diagnosis is important for effective patient management and rapid response to epidemic outbreaks.

We evaluated the performance characteristics of three commercial rapid non-microplate enzyme immunoassays that utilise specific bound monoclonal and/or polyclonal antibodies to capture and detect rotavirus antigens: TestPack® Rotavirus (Abbott Laboratories, Chicago, IL) is a flow-through membrane EIA; ImmunoCard STAT® Rotavirus (Meridian Diagnostics, Cincinnati, OH) and RotaStrip® (Coris BioConcept, Wépion, Belgium) are recently developed immunochromatographic assays. As reference method we used the monoclonal antibody-based Premier Rotaclone® microwell EIA (Meridian Diagnostics). Fifty rotavirus antigen positive and 50 rotavirus antigen negative stool specimens were tested with the three rapid immunoassay.

All three rapid EIA tests were easy to perform, required no specialized laboratory equipment, and could yield results in less than 15 minutes. The specificities reached 100%, 98%, and 92%, and sensitivities were 100%, 98%, and 100% for the Abbott TestPack®, Meridian Immunocard STAT®, and Coris BioConcept RotaStrip®, respectively. All three rapid qualitative methods could therefore represent useful alternatives for the more laborious microplate EIA procedures. Cost, speed, sample load, and ease of use are likely to influence the decision of the clinical laboratory to implement a rapid rotavirus antigen assay.