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A NEW SENSITIVE ASSAY FOR THE DETECTION OF ANTIBODIES AGAINST HEPATITIS A VIRUS IN SALIVA: COMPARATIVE ANALYSIS OF FIVE DIFFERENT ENZYME IMMUNOASSAY FORMATS

Objectives. The major goal of this study was to develop a new screening assay for the detection of IgG antibodies to the hepatitis A virus (anti-HAV) in saliva.
Materials and Methods. Twenty IgG anti-HAV positive and 24 negative serum samples were randomly selected from normal blood donors. All specimens were initially tested by a commercially available enzyme immunoassay (EIA) (HAVAB; Abbott Laboratories, Abbott Park, IL) for the presence of IgG anti-HAV activity zees. Saliva specimens paired with serum specimens (n=113) were randomly selected from a collection reposited at the Centers for Disease Control and Prevention (Atlanta, GA). All saliva specimens were previously tested for IgG anti-HAV activity by the Public Health Laboratory Service (PHLS, London, UK).
Results. Five different EIA formats were developed and compared; namely, basic indirect sandwich (ISF), direct antibody competition and antibody capture (ACF) formats. The ACF was found to be more sensitive than the other formats for the detection of specific IgG in saliva; whereas, both ACF and the indirect sandwich format (ISF) equally detected antibodies in 100% of known positive serum specimens. After additional optimization specifically for antibody detection in saliva, the ACF assay was evaluated using paired saliva and serum specimens. The optimized ACF assay demonstrated 97% sensitivity and 97% specificity for the detection of IgG anti-HAV activity in saliva compared to the matcher serum specimen. The concordance between this test and the test developed by the PHLS was 96.5%.
Conclusion. This new enzyme immunoassay for the detection of IgG anti-HAV activity in saliva is a very reliable noninvasive alternative to the use of serum specimens. This assay is for HAV prevalence studies and for pre-vaccination screening studies especially in children.

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