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
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RESEARCH ARTICLE

Detection of Cytomegalovirus in Urine Specimen of Cholestatic Infants by Polymerase Chain Reaction

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ABSTRACT:

Cholestatic infants are associated with congenital abnormalities or viral infections, such as cytomegalovirus (CMV) infection. CMV can be detected by polymerase chain reaction (PCR) in body fluids, including urine which can be obtained easily and is non-invasive. The objective was to detect CMV in urine specimens of cholestasis infants and to analyze its correlation with serological status. This was a descriptive observational study with the cross-sectional approach, used urine from 39 cholestatic infants who meet the inclusion and exclusion criteria and have been approved by Ethics Committee. The nested-PCR was performed from extracted urine and unextracted direct urine. Serological data of immunoglobulin (Ig) M and IgG data were collected. Data were analyzed by Chi-square. Detection of CMV from extracted urine by PCR showed positive in 87.2% patients and from unextracted urine was positive in 48.7% patients. Serological status showed that IgM was positive in 41.0% patients and IgG was positive in 89.7% patients. The acute infection (IgM+ IgG+) was found in 41.0% patients, past infection (IgM-IgG+) was 48.7% patients, and not infected (IgM-IgG-) was in 10.3% patients. The acute infection (IgM+ IgG+), past infection (IgM-IgG+) and not infected (IgM-IgG-) was found in 41.0%, 48.7%, and 10.3% patients, respectively. The correlation between PCR CMV from extracted urine with serological CMV was moderate, while the unextracted urine was low. It indicates that to detect the infection of CMV, PCR technique is more accurate than serological testing, and the extracted urine is more appropriate specimen as PCR template than direct urine.

KEYWORDS: Infant mortality, Infectious disease, Cytomegalovirus, Polymerase chain reaction.

INTRODUCTION:

Cholestasis is an important cause of morbidity and mortality in infants and children¹⁻⁶. Cholestasis is defined as decreased bile flow due to failure of secretion by hepatocytes or obstruction of bile flow to the intra or extra hepatic bile ducts.

The diagnosis of cholestasis is performed based on the examination of conjugated bilirubin levels, namely direct or conjugated bilirubin levels greater than 2 mg/dL if total bilirubin is less than 5 mg/dL, or more than 20% of total bilirubin if the bilirubin level is more than 5 mg/dL^{1-4,7}. The inability to detect and monitor the progression of liver damage will interfere the management of disease with cholestasis. The bile acids accumulation has an impact on hepatotoxicity so that it is an underlying cause of abnormalities in the liver⁸⁻¹⁰. If the cholestatic condition is not detected in early or not received the proper therapy, it will cause serious abnormalities that lead to death.

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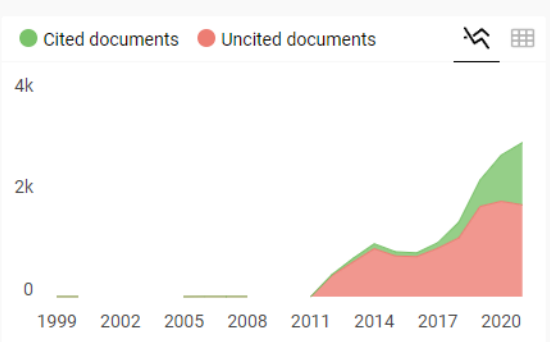
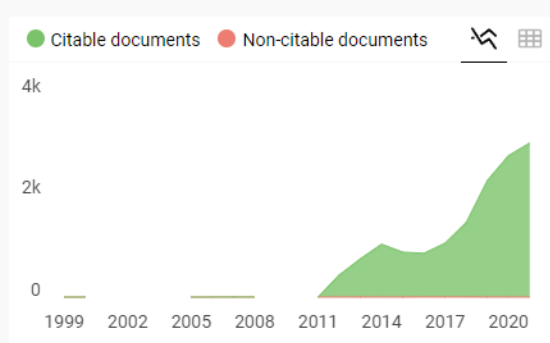
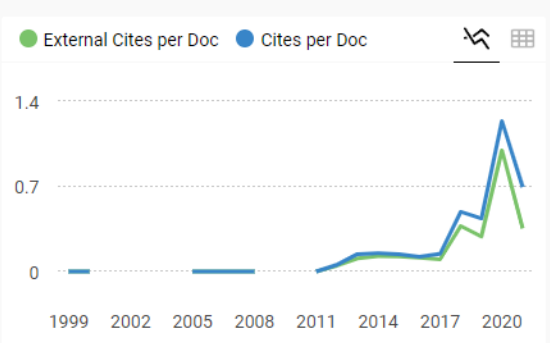
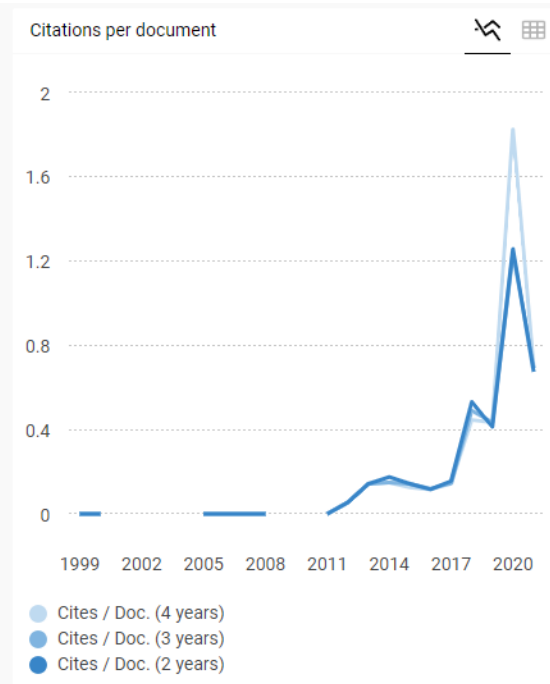
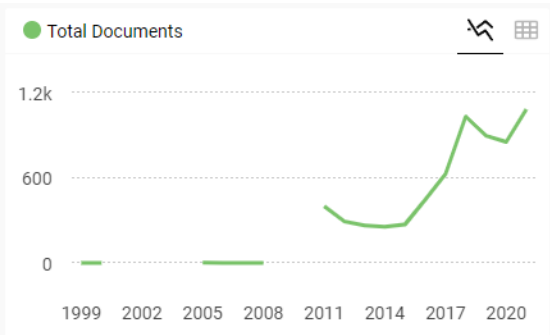
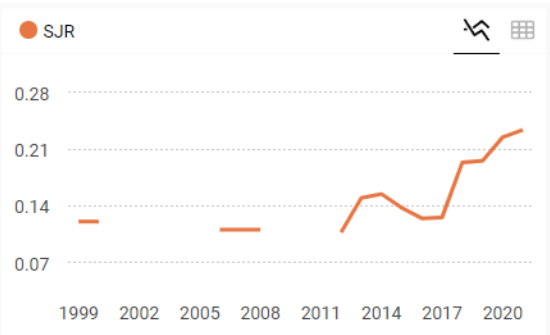
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