ABSTRACT

Acute respiratory tract infection (ARI) is a type of acute infection that affect one or multiple parts of the human respiratory system. ARI is the leading cause of morbidity and mortality rates in the world, particularly in infants and elderly with comorbidities. The prevalence of ARI in children at Central Java Province in 2019 was 3.62% which was higher than the other provinces. Respiratory syncytial virus (RSV) is one of the respiratory viruses that are responsible for respiratory tract diseases in human, including ARI. RSV is a negative single-stranded RNA virus which can be detected by direct or indirect molecular detection. This study aimed to qualitatively detect of RSV infection in children with ARI and determine the prevalence rate of RSV infection in ARI cases in children in the Batur District, Banjarnegara.

This study was conducted using a cross-sectional survey with purposive sampling. Fifty nasopharyngeal (NP) swab samples were collected from children with ARI located in Puskesmas Batur I and Batur II, Banjarnegara. RNA was extracted using Zymo Direct -ZolRNA Miniprep followed with cDNA synthesis using Promega GoScript RT System. NanoDrop spectrophotometer was used to determine the concentration and purity of the extracted RNAs and synthesized cDNAs. RSV detection was performed using reverse transcription PCR (RT-PCR) by nested PCR method. The PCR product was visualized in 1.5% agarose gel electrophoresis.

Our results showed that nested RT-PCR can be utilized to detect RSV in NP swab samples. From 50 samples tested, only three samples showed positive DNA bands corresponding to the target size of ~561 bp. The RSV positive samples (ISPA_C_002, ISPA_D_014, and ISPA_D_016) were mostly female, less than one year old, with exposure to cigarette smoke and history of ARI among family members. The calculated prevalence rate of RSV infection was 6%, indicating low prevalence of RSV infection in children with ARI in Batur District.

Keyword: *Acute Respiratory Infection, Batur, Children, Nasopharyngeal swab, Respiratory Syncytial Virus, RT-PCR.*