PENGARUH WAKTU DAN SUHU PENYIMPANAN SAMPEL SWAB NASOFARING DI DALAM *VIRAL TRANSPORT MEDIUM* (VTM) TERHADAP HASIL RT-PCR SARS-COV-2

LAPORAN HASIL
KARYA TULIS ILMIAH

Diajukan sebagai syarat untuk mengikuti ujian proposal Karya Tulis Ilmiah mahasiswa Program Strata-1 Kedokteran Umum

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ABSTRAK

Latar Belakang: *Coronavirus Disease* 2019 merupakan penyakit menular yang disebabkan oleh *Severe Acute Respiratory Syndrome Coronavirus* 2. WHO merekomendasikan RT-PCR untuk mendiagnosis seseorang terinfeksi COVID-19. Di laboratorium pemeriksaan juga kadangkala terkendala jumlah sampel yang akan diperiksa melebihi kapasitas laboratorium. Hal ini menyebabkan sampel harus disimpan bahkan selama beberapa hari dan tidak dalam suhu penyimpanan yang ideal. Waktu dan suhu penyimpanan merupakan faktor yang mungkin dapat mempengaruhi hasil kualitatif dan kuantitatif (CT-value) pada RT-PCR pasien COVID-19.

Tujuan: Penelitian ini dilakukan untuk mengetahui pengaruh lama dan suhu penyimpanan pada sampel swab terhadap hasil kualitatif dan kuantitatif RT-PCR SARS-CoV-2.

Metode: Penelitian eksperimental ini menggunakan sampel VTM yang berasal dari pasien Covid-19. Sampel VTM memperoleh perlakuan suhu dan waktu penyimpanan yang berbeda yaitu waktu segera, 5 hari dan 8 hari dengan suhu 4°C dan -20°C dengan pengujian *Paired Sample T-Test.*

Hasil: Tidak terdapat perbedaan pada hasil kualitatif RT-PCR SARS-CoV-2 setelah penyimpanan dalam waktu segera, 5 hari, dan 8 hari dengan suhu ruang, 4°C, dan -20°C dimana semua sampel masih menunjukkan hasil positif. Terdapat perbedaan CT-Value antara sampel yang langsung diperiksa dengan yang disimpan, dimana terdapat nilai $p<0,05$.

Kesimpulan: Dari penelitian diperoleh bahwa tidak terdapat perbedaan hasil kualitatif RT-PCR SARS-CoV-2 dan terdapat perbedaan hasil kuantitatif RT-PCR SARS-CoV-2.

Kata kunci: COVID-19, SARS-CoV-2, RT-PCR, CT-Value, Lama Penyimpanan, Suhu Penyimpanan

ABSTRACT

Background: *Coronavirus disease 2019 (COVID-19) is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). Currently, Indonesia is facing the post-COVID-19 era, so the public is expected to remain alert. WHO recommends RT-PCR for diagnosing someone infected with COVID-19. The RT-PCR examination should be carried out immediately after taking the sample, but in reality this is hampered by the lack of facilities that can carry out RT-PCR near the location so the sample must be referred. In examining laboratories, the number of samples to be examined exceeds the capacity of the laboratory. This causes samples to have to be stored even for several days and not at ideal storage temperatures. Storage time and temperature are factors that may influence the qualitative and quantitative results (CT-value) of RT-PCR for COVID-19 patients.*

Aim: *This research was conducted to determine the effect of storage time and temperature for swab samples on the qualitative and quantitative results of SARS-CoV-2 RT-PCR.*

Method: *This experimental study used VTM samples originating from Covid-19 patients. VTM samples received different temperature and storage time treatments, namely immediate, 5 days and 8 days at temperatures of 4°C and -20°C using the Paired Sample T-Test.*

Results: *There was no difference in the qualitative results of SARS-CoV-2 RT-PCR after immediate storage, 5 days, and 8 days at room temperature, 4°C, and -20°C where all samples still showed positive results. There is a difference in CT-Value between samples that were directly examined and those that were stored, where there is a p value <0.05.*

Conclusion: *From the research it was found that there was no difference in the qualitative results of RT-PCR SARS-CoV-2 and there was a difference in the quantitative results of RT-PCR SARS-CoV-2.*

Key Words: COVID-19, SARS-CoV-2, RT-PCR, CT-Value, *Storage Time, Storage Temperature*