Pengaruh Berkumur Iodin Povidon 1% dan Hidrogen Peroksida 3% terhadap Nilai CT RT-PCR Sars-Cov-2 (Uji in Vivo pada Pasien terinfeksi Sars-Cov-2 Tanpa Gejala dan Gejala Ringan) = The Effect of 1% Povidone Iodine and 3% Hydrogen Peroxide Mouthrinsing and Gargling on RT-PCR CT Value of Sars-Cov-2 (in Vivo Study in Asymptomatic and Mild Symptomatic Sars-Cov-2 Infected Patient

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Abstrak

Latar Belakang: Coronavirus disease 2019 (COVID-2019) disebabkan oleh severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) dan menjadi tantangan karena menyebar luas secara cepat. Jumlah virus SARS-CoV-2 ditemukan tinggi pada awal infeksi di rongga mulut dan saluran pernapasan bagian atas. Tindakan bedah di rongga mulut memiliki potensi tinggi untuk transmisi SARS-CoV-2. American Dental Association (ADA) dan Centers for Disease Control and Prevention (CDC) merekomendasikan berkumur hidrogen peroksida 1,5% atau iodin povidon 0,2% sebelum tindakan medis. Mengurangi jumlah virus di saluran pernapasan bagian atas pada awal infeksi menurunkan keparahan perkembangan penyakit dan risiko transmisi. Nilai cycle threshold (CT) dari hasil pemeriksaan real time reverse transcription polymerase chain reaction (RT-PCR) merepresentasikan secara semikuantitatif viral load.
Tujuan Penelitian: Menganalisis pengaruh berkumur iodin povidon 1% dan hidrogen peroksida 3% terhadap nilai CT RT-PCR SARS-CoV-2.
Metode Penelitian: 45 subjek penelitian diambil dari pasien Rumah Sakit Umum Pusat Persahabatan yang terinfeksi SARS-CoV-2 sesuai kriteria inklusi dan ekslusi. Subjek penelitian dibagi ke dalam kelompok iodin povidon 1%, kelompok hidrogen peroksida 3%, dan kelompok kontrol. Subjek penelitian berkumur 30 detik di rongga mulut dan 30 detik di tenggorokan belakang dengan 15 ml sebanyak 3 kali sehari selama 5 hari. Analisis nilai CT dilakukan melalui pemeriksaan RT-PCR pada hari ke-1, hari ke-3, dan hari ke-5 setelah berkumur.
Hasil: Didapatkan perbedaan bermakna pada hasil uji Friedman dan tampak peningkatan nilai CT RT-PCR mulai dari awal, hari ke-1, hari ke-3, dan hari ke- 5 pada keseluruhan kelompok dan masing-masing kelompok perlakuan. Hasil uji Post- Hoc dengan Wilcoxon menunjukkan perbedaan bermakna pada keseluruhan kelompok hari nilai CT RT-PCR dari keseluruhan kelompok dan kelompok iodin povidon 1%. Perbedaan bermakna sebagian besar kelompok hari nilai CT RT-PCR ditemukan dari hasil uji Post-Hoc dengan Wilcoxon pada kelompok hidrogen peroksida 3% dan kelompok kontrol, kecuali antara hari ke-1 dengan hari ke-3 dan antara hari ke-3 dengan hari ke-5 pada kelompok hidrogen peroksida 3% dan antara hari ke-3 dengan hari ke-5 pada kelompok kontrol. Peningkatan tertinggi nilai CT RT-PCR awal hingga hari ke-1 ditemukan pada kelompok hidrogen peroksida 3%, sedangkan antara hari ke-1 hingga ke-3 dan hari ke-3 hingga hari ke-5 ditemukan pada kelompok iodin povidon 1%. Usia dan jenis kelamin ditemukan tidak memiliki hubungan yang bermakna terhadap perubahan nilai CT RT-PCR.
Kesimpulan: Berkumur iodin povidon 1% dan hidrogen peroksida 3% berpengaruh terhadap peningkatan nilai CT RT-PCR SARS-CoV-2. Peningkatan tertinggi nilai CT RT-PCR awal hingga hari ke-1 ditemukan pada kelompok hidrogen peroksida 3%, sedangkan antara hari ke-1 hingga ke-3 dan hari ke-3 hingga hari

ke-5 ditemukan pada kelompok iodin povidon 1%.

.....Background: Coronavirus disease 2019 (COVID-2019) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and poses a challenge because it can spread rapidly. The number of SARS-CoV-2 was found to be high at the beginning of infection in the oral cavity and upper respiratory tract. Surgery in the oral cavity poses high transmission risk of SARS-CoV-2. The American Dental Association (ADA) and the Centers for Disease Control and Prevention (CDC) recommend the use of mouthrinse either 1.5% hydrogen peroxide or 0.2% povidone iodine before commencing any surgical treatment. Reducing the viral load in the upper respiratory tract at the early of infection may decrease the severity of disease progression and the risk of transmission. The cycle threshold (CT) value from the real time reverse transcription polymerase chain reaction (RT-PCR) examination semi-quantitatively represents the viral load.

Objective: To analyze the effect of mouthrinsing and gargling with 1% povidone iodine and 3% hydrogen peroxide on the CT value of SARS-CoV-2.

Methods: 45 subjects were patients recruited from Persahabatan General Hospital infected with SARS-CoV-2 according to the inclusion and exclusion criteria. The subjects were divided into 1% povidone iodine group, the 3% hydrogen peroxide group, and the control group. The subjects were instructed to rinse their mouths for 30 seconds and gargle for 30 seconds at the back of the throat with 15 mL of the mouthrinse 3 times a day for 5 days. Analysis of CT values were carried out using RT-PCR on day 1, day 3 and day 5 after mouthrinsing and gargling.

Results: Significant differences were found in the results of the Friedman test, and the CT value demonstrated increases from the initial, day 1, day 3 and day 5 in the whole group and each group. The results of the Post-Hoc test with Wilcoxon showed significant differences in the whole day group of the CT value of the whole group and the 1% povidone iodine group. Significant differences in most of the day group were found from the results of the Post-Hoc test with Wilcoxon in the 3% hydrogen peroxide group and the control group, except between day 1 and day 3 and between day 3 and day 5 in the 3% hydrogen peroxide group and between day 3 and day 5 in the control group. The highest increase in the initial CT value until day 1 was found in the 3% hydrogen peroxide group, while the increase between days 1 to 3 and day 3 to day 5 was found in the 1% povidone iodine group. Age and gender showed no significant correlation with changes in CT values.

Conclusion: Mouthrinsing and gargling with 1% povidone iodine and 3% hydrogen peroxide were found to increase the CT value of SARS-CoV-2. The highest increase in the initial CT value until day 1 was found in the 3% hydrogen peroxide group, while between days 1 to 3 and day 3 to day 5 was found in the 1% povidone iodine group.