

## Efectividad de Povidona Yodada y Peróxido de Hidrógeno en Coronavirus: una Revisión de la Literatura

## Effectiveness of Povidone Iodine and Hydrogen Peroxide in Coronavirus treatment: A Review of the Literature

Paula Ampuero<sup>1</sup>, Sebastián Álvarez<sup>1</sup>, Valentina Atenas<sup>1</sup>, Claudia Lefimil<sup>2</sup>, Rafael Contador<sup>3</sup>

### RESUMEN

**Objetivo:** evaluar la efectividad de PVP-I y PH cómo antiséptico en la disminución de carga viral de Coronavirus, además determinar su concentración efectiva y métodos de aplicación, para ser incluidos en protocolos de Bioseguridad.

**Materiales y Métodos:** Se realizó una búsqueda en bases de datos PubMed, Embase y Web of Science, utilizando el algoritmo de búsqueda: "(coronavirus AND (povidone iodine OR hydrogen peroxide))" y filtro de publicación últimos 5 años. Criterios de inclusión: artículos publicados entre 2015-2020; artículos in vivo e in vitro; sin restricción idiomática. Criterios de exclusión: revisiones; no atingencia; duplicidad.

**Resultados:** La búsqueda arrojó 34 resultados, 17 eran duplicados, por lo que 17 artículos cumplen con los criterios de selección. 10 evalúan enjuagues orales y nasofaríngeos (EON) y 7 evalúan superficie extraoral (SE).

Para EON se comprueba efecto viricida de PVP-I desde concentraciones de 0,23% y para PH, se comprueba efecto desde 3%, ambos evaluados a partir de los 15 segundos de aplicación, con resultados disímiles. En SE destaca la utilización de vapor de PH (VPH) demostrando efectividad, y uso de PVP-I a partir de 7,5%.

**Conclusión:** Debido a la similitud de receptores y estructura molecular de los diferentes Coronavirus, el uso de agentes viricidas podría ser común y efectivo. Se recomienda el uso de colutorio PVP-I a 0,23% durante 15 segundos. En desinfectantes extraorales, el VPH es utilizado para disminuir la carga viral de SARS-CoV-2, como complemento a barreras de bioseguridad, minimizando riesgos de propagación de COVID-19.

1. Pregrado Facultad de Odontología, Universidad de Chile.
2. Instituto de Investigación de Ciencias Odontológicas, Facultad de Odontología, Universidad de Chile.
3. Departamento de Odontología Restauradora, Facultad de Odontología, Universidad de Chile

**VII Jornada Científica de Estudiantes de Odontología UV**  
(Valparaíso, Chile)  
**Locación:** Online  
**Año:** 2020  
**Presentación Oral**  
10 de octubre – 09:05 a 09:25 hr

Correspondencia: Paula Ampuero.

Correo electrónico:  
paula.ampuero.m@ug.uchile.cl

**PALABRAS CLAVE:**

Coronavirus; SARS-CoV-2; Povidona yodada; Peróxido de hidrógeno; Antiséptico.

**KEYWORDS:**

Coronavirus; SARS-CoV-2; Povidone iodine; Hydrogen peroxide; Antiseptic.

**ABSTRACT**

**Objective:** to evaluate the effectiveness of PVP-I and HP as an antiseptic in reducing the viral load of Coronavirus, in addition to determining its effective concentration and application methods to be incorporated in Biosafety protocols.

**Materials and Method:** A research was conducted using PubMed, Embase, and Web of Science databases, applying the search algorithm: "(coronavirus AND (povidone-iodine OR hydrogen peroxide))" and a publication filter of the last five years. Inclusion criteria: articles published between 2015-2020; in vivo and in-vitro articles; no language restriction. Exclusion criteria: reviews; not relevant; duplicity.

**Results:** The search generated 34 results where 17 were duplicates, which meant that 17 articles met the selection criteria. Ten articles evaluated "Oral and nasopharyngeal rinses" (ONR) and, seven assessed "Extraoral surfaces" (ES). For ONR, it was established a viricidal effect of PVP-I from concentrations of 0.23%, and for HP, it was verified an effect from 3%, both were evaluated after 15 seconds of application, with different results. In ES, the use of PH steam (HPV) stands out, demonstrating effectiveness, and the use of PVP-I from 7.5%.

**Conclusion:** Due to the similarity of receptors and molecular structure of the different Coronaviruses, the use of viricidal agents could be common and effective. The use of 0.23% PVP-I mouthwash for 15 seconds is recommended. In extraoral disinfectants, HPV is used to reduce the viral load of SARS-CoV-2 as a complement to biosafety barriers, minimizing the risks of the spread of COVID-19.

**REFERENCIAS**

- [1] Bidra AS, Pelletier JS, Westover JB, Frank S, Brown SM, Tessema B. Rapid In-Vitro Inactivation of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Using Povidone-Iodine Oral Antiseptic Rinse. *J Prosthodont.* 2020;29(6):529–33.
- [2] Anderson DE, Sivalingam V, Kang AEZ, Ananthanarayanan A, Arumugam H, Jenkins TM, et al. Povidone-Iodine Demonstrates Rapid In Vitro Virucidal Activity Against SARS-CoV-2, The Virus Causing COVID-19 Disease. *Infect Dis Ther.* 2020;9(3).
- [3] Bidra AS, Pelletier JS, Westover JB, Frank S, Brown SM, Tessema B. Comparison of In Vitro Inactivation of SARS CoV-2 with Hydrogen Peroxide and Povidone-Iodine Oral Antiseptic Rinses. *J Prosthodont.* 2020.
- [4] Martínez Lamas L, Diz Dios P, Pérez Rodríguez MT, Del Campo P, Cabrera Alvargonzalez JJ, López Domínguez AM, et al. Is povidone-iodine mouthwash effective against SARS-CoV-2? First in vivo tests. *Oral Dis.* 2020
- [5] Eggers M, Koburger-Janssen T, Eickmann M, Zorn J. In Vitro Bactericidal and Virucidal Efficacy of Povidone-Iodine Gargle/Mouthwash Against Respiratory and Oral Tract Pathogens. *Infect Dis Ther.* 2018;7(2):249–59.
- [6] Eggers M, Eickmann M, Zorn J. Rapid and Effective Virucidal Activity of Povidone-Iodine Products Against Middle East Respiratory Syndrome Coronavirus (MERS-CoV) and Modified Vaccinia Virus Ankara (MVA). *Infect Dis Ther.* 2015;4(4):491–501.
- [7] Khan MM, Parab SR, Paranjape M. Repurposing 0.5% povidone iodine solution in otorhinolaryngology practice in Covid 19 pandemic. *Am J Otolaryngol - Head Neck Med Surg.* 2020;41(5).
- [8] Welch JL, Xiang J, Mackin SR, Perlman S, Thorne P, O'Shaughnessy P, et al. Inactivation of SARS CoV-2 and Diverse RNA and DNA Viruses on 3D Printed Surgical Mask Materials. *Infect Control Hosp Epidemiol.* 2020; 1–26
- [9] Grossman J, Pierce A, Mody J, Gagne J, Sykora C, Sayood S, et al. Institution of a Novel Process for N95 Respirator Disinfection with Vaporized Hydrogen Peroxide in the Setting of the COVID-19 Pandemic at a Large Academic Medical Center. *J Am Coll Surg.* 2020;231(2):275–80.
- [10] Fischer R, Morris D, van Doremalen N, Sarchette S, Matson J, Bushmaker T, et al. Assessment of N95 respirator decontamination and re-use for SARS-CoV-2. *medRxiv Prepr Serv Heal Sci.* 2020 ;2020.04.11.20062018.
- [11] Ibáñez-Cervantes G, Bravata-Alcántara

- JC, Nájera-Cortés AS, Meneses-Cruz S, Delgado-Balbuena L, Cruz-Cruz C, et al. Disinfection of N95 masks artificially contaminated with SARS-CoV-2 and ESKAPE bacteria using hydrogen peroxide plasma: Impact on the reutilization of disposable devices. *Am J Infect Control*. 2020;48(9):1037–41.
- [12] Chin AWH, Chu JTS, Perera MRA, Hui KPY, Yen H-L, Chan MCW, et al. Stability of SARS-CoV-2 in different environmental conditions. *The Lancet Microbe* [Internet]. 2020;1(1):e10.
- [13] Capetti AF, Borgonovo F, Morena V, Lupo A, Cossu MV, Passerini M, et al. Short-term inhibition of SARS-CoV-2 by hydrogen peroxide in persistent nasopharyngeal carriers. *J Med Virol*. 2020 ;jmv.26485.
- [14] Gottsauner MJ, Michaelides I, Schmidt B, Scholz KJ, Buchalla W, Widbiller M, et al. A prospective clinical pilot study on the effects of a hydrogen peroxide mouthrinse on the intraoral viral load of SARS-CoV-2. *Clin Oral Investig*. 2020;1–7.
- [15] Caruso AA, Del Prete A, Lazzarino AI, Capaldi R, Grumetto L. Might hydrogen peroxide reduce the hospitalization rate and complications of SARS-CoV-2 infection? *Infect Control Hosp Epidemiol*. 2020;1–2.
- [16] Eggers M, Koburger-Janssen T, Ward LS, Newby C, Müller S. Bactericidal and Virucidal Activity of Povidone-Iodine and Chlorhexidine Gluconate Cleansers in an In Vivo Hand Hygiene Clinical Simulation Study. *Infect Dis Ther*. 2018;7(2):235–47.
- [17] Jatta M, Kiefer Bsn C, Patolia H, Pan J, Marr LC, Baffoe-Bonnie A. N95 reprocessing by low temperature sterilization with 59% vaporized hydrogen peroxide during the 2020 COVID-19 pandemic. *AJIC Am J Infect Control*. 2020.