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Evaluation of chlorhexidine mouthwash for oropharyngeal decontamination in patients with COVID-19

Submission date
06/09/2026

Recruitment status
No longer recruiting

Registration date
22/09/2026

Overall study status
Completed

Last Edited
22/09/2026

Condition category
Infections and Infestations

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
When the COVID-19 pandemic began, the virus that causes it (SARS-CoV-2) was known to be present in large amounts in the mouth and throat. Laboratory experiments showed that some antiseptic mouthwashes can kill the virus in a test tube. This raised a question that mattered in everyday hospital practice: if patients admitted with COVID-19 rinsed their mouth with an antiseptic, would the amount of virus in their throat fall faster, and would they get better sooner? Chlorhexidine is one of the most widely used mouthwashes in hospitals, so this study set out to test whether rinsing with chlorhexidine reduces the amount of SARS-CoV-2 in the throat of patients admitted to hospital with COVID-19 that was not severe.

Who can participate?
Adults admitted to hospital (the approved protocol specified 18 to 60 years; in practice participants aged up to 75 were enrolled) with a positive SARS-CoV-2 PCR test whose COVID-19 was not severe, and who were able to rinse their mouth properly for 30 seconds.

What does the study involve?
Participants were allocated at random, by chance, to one of three groups. The first group rinsed with chlorhexidine 0.12%. The second group rinsed with chlorhexidine 0.12% that also contained 5% alcohol, prepared by the hospital pharmacy. The third group was a comparison group and did not use any mouthwash. Those in the two mouthwash groups rinsed with 15 mL for at least 30 seconds, three times a day for 7 days, after meals and after brushing their teeth, and then had nothing to eat or drink for at least an hour. Everyone in all three groups received the usual hospital treatment for COVID-19. A swab from the nose and throat was taken before the first rinse, and throat swabs were taken again after 48 hours and after 7 days, to measure how much virus was present. Participants were seen every day until they went home or until day 7.

What are the possible benefits and risks of participating?
The possible benefit was a faster fall in the amount of virus in the throat, which might have shortened the illness. Chlorhexidine mouthwash is widely used and generally well tolerated; the known effects are usually mild and include an altered sense of taste, a temporary burning

sensation in the mouth, and staining of the teeth with prolonged use. No serious effects were expected over a 7-day course, and none attributable to the mouthwashes were recorded.

Where is the study run from?
Hospital Universitari Son Espases, Palma, Illes Balears, Spain.

When is the study starting and how long is it expected to run for?
Participants were recruited from April 2020 to March 2021.

Who is funding the study?
This study received no funding

Who is the main contact?
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What were the results?
Rinsing with chlorhexidine did not make the virus clear from the throat any faster. There was a small reduction in the amount of virus in the chlorhexidine groups after 48 hours, but it was at the edge of what would be considered a real difference, and it had disappeared completely by day 7. The proportion of patients whose PCR test became negative was no higher in the chlorhexidine groups, and there was no difference between the groups in the need for oxygen, admission to intensive care, or length of hospital stay. No patient died. What most influenced how quickly the virus cleared was how much virus a patient had at the start, not whether they used a mouthwash.

Contact information

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Study information

Scientific Title
Antiviral effect of oral decontamination with alcoholic chlorhexidine in SARS-CoV-2 respiratory infection

Study objectives

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 19/04/2020, Comité de Ética de la Investigación de las Islas Baleares (C. de Jesús, 38 A, Palma, 07010, Spain; +34 971 17 73 78; ceic_ib@caib.es), ref: CEI-IB 4199-20PI

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Open (masking not used)

Control
Active

Assignment
Parallel

Purpose
Treatment

Study type(s)

Health condition(s) or problem(s) studied
COVID-19 (SARS-CoV-2 infection), non-severe, in hospitalised adults

Interventions
Group 1 (aqueous CHX): chlorhexidine digluconate 0.12% mouthwash (Clorhexidina Lacer, 15 mL single-dose sachet), 15 mL rinsed for at least 30 seconds, three times daily, after main meals and toothbrushing, with no food or drink for at least 60 minutes afterwards, for 7 days, in addition to standard care.

Group 2 (alcoholic CHX): chlorhexidine digluconate 0.12% plus ethanol 5%, compounded by the Hospital Pharmacy Service (pharmacotechnics laboratory), same dose, frequency, technique and duration, in addition to standard care.

Control: standard care only, no mouthwash. Standard care in all arms followed the Spanish Ministry of Health and local hospital protocols in force, and could include lopinavir/ritonavir, azithromycin, hydroxychloroquine, remdesivir, corticosteroids, oxygen therapy, intubation and mechanical ventilation, antibiotics and vasoactive support as indicated.

Randomisation was performed using a random sequence generated with an online tool.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
marketed antiseptic, non-medicinal-product intervention

Primary outcome(s)
1. SARS-CoV-2 viral load in oropharyngeal specimens measured using the change from the pre-treatment baseline value in cycle threshold (Ct) of quantitative RT-PCR (E gene target) at 0h, 48h, 168h

Key secondary outcome(s)
1. Percentage of RT-PCR negativisation (virus not detected) measured using cycle threshold (Ct) of quantitative RT-PCR (E gene target) at 48h, 168h

2. Change in Ct values in the pooled chlorhexidine groups (Group 1 + Group 2) compared with control measured using cycle threshold (Ct) of quantitative RT-PCR (E gene target) at 48h, 168h

3. Length of hospital stay measured using days at Hospital discharge

4. Transfer to an intermediate respiratory care unit or to intensive care measured using % of participants at hospital discharge

5. In-hospital mortality measured using % of participants at Hospital discharge

Completion date
15/03/2021

Eligibility

Key inclusion criteria
1. Hospitalised adults aged 18–60 years
2. PCR-confirmed SARS-CoV-2 infection
3. Non-severe COVID-19 (NEWS score ≤6)
4. Able to understand and correctly perform a 30-second mouth rinse
5. Written informed consent

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Upper age limit
60 Years

Sex
All

Total final enrolment
107

Key exclusion criteria
1. NEWS score >7 at randomisation
2. Contraindication or allergy to mouthwash components
3. Respiratory rate >30 breaths/min on room air
4. Baseline oxygen saturation <92%
5. PaO2/FiO2 <250
6. Any clinical situation precluding safe performance of rinses in the judgement of the responsible physician (e.g. cognitive impairment, advanced age)

Date of first enrolment
23/04/2020

Date of final enrolment
08/03/2021

Locations

Countries of recruitment
Spain

Sponsor information

Organisation

Health Research Institute of the Balearic Islands

ROR
https://ror.org/037xbgq12

Funder(s)

Funder type

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available