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Study on the performance and safety of Sentinox in the prevention of acute respiratory infections

Submission date
08/08/2022

Recruitment status
No longer recruiting

Registration date
18/08/2022

Overall study status
Stopped

Last Edited
12/02/2025

Condition category
Respiratory

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

Plain English summary of protocol

Background and study aims
Acute respiratory infections (ARI) are amongst the most important contributors to acute illness throughout the industrialized world. ARI is a general label encompassing both upper respiratory tract infections (URTI) and lower respiratory tract infections (LRTI), which are caused by a variety of etiological agents and present with a diverse constellation of symptoms and signs. The primary aims of interventions for URTI are to relieve symptoms, shorten the illness – or reduce complications – reducing infectivity to others, with minimal adverse effects from treatments.

Nasal irrigation with isotonic or hypertonic saline is a traditional method for respiratory or nasal care. Nasal irrigation involves flushing of the nasal cavity with various solutions that remove biological and inert material, provide moisture to respiratory epithelia and gels mucus, promote ciliary beating, and improve mucociliary clearance. Due to its wetting properties, the nasal solution achieves an improved spreading of alveolar lining fluid and has been shown to reduce nasal symptoms. Additive substances may also be included in the formulation to provide adjunctive benefits, such as antimicrobial agents, to provide a more effective eradication of infections.

Hypochlorous acid (HOCl) is produced in the body of all mammals by the immune cells in response to injury and infection. HOCl is recognized as having proven antimicrobial and antiviral properties. Several clinical studies have shown that a nasal solution containing HOCl is effective for reducing the duration of illness and of symptoms such as sneezing and cough in patients with URTIs. Nasal sprays are widely recognised for their mechanical ability to relieve allergies and colds by reducing the antigens and the amount of virus (also called viral load) in the nose and consequently supporting the protective activity of the nose lining.

By combining its mechanical activity with the anti-infective component HOCl, Sentinox represents an ideal medical device to reduce nasal viral load, potentially prevent more severe symptoms and also reduce or block the transmission of pathogens. Recently, APR SA performed a clinical trial and the results confirmed the ability of Sentinox in reducing the nasal viral load in mild COVID-19 patients and its good safety profile. Experiments have demonstrated that

Sentinox has an antiviral efficacy against seven different respiratory viruses. By providing a significant reduction in the nasal viral load, Sentinox may also have the potential to interfere with the spreading of the virus to the lungs, thereby preventing clinical worsening. APR SA has obtained CE Certification as a medical device for Sentinox. However, no data are available about the use of Sentinox in the prevention of ARI. Therefore, this study is planned now that the product has marketing approval to assess the performance and safety of Sentinox in the prevention of ARI.

Who can participate?
Healthy adult volunteers aged between 18 and 64 years old

What does the study involve?
Participants will be allocated to one of two groups, with an equal chance of being in either group (like tossing a coin):
- Group A: IMD treatment performed 3 times/day for 21 days
- Group B: no IMD treatment

What are the possible benefits and risks of participating?
Nasal irrigation plays an important role in relieving allergies and colds. However, participation in a clinical trial may involve risks. In general, nasal irrigation is a simple procedure that is well-tolerated, and has minor common side effects including a sense of discomfort and nervousness, especially during the first use, and a burning sensation upon application. With prolonged use, possible local irritation, pain, and sensitization may occur.

Where is the study run from?
Ospedale Policlinico San Martino IRCCS (Italy)

When is the study starting and how long is it expected to run for?
June 2022 to September 2023

Who is funding the study?
APR Applied Pharma Research SA (Switzerland)

Who is the main contact?
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Contact information

Type(s)
Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
NCT05499780

Protocol serial number
STX-2022

Study information

Scientific Title
Post-market, randomized and controlled clinical study to assess the performance and safety of Sentinox in the prevention of acute respiratory infections

Study objectives
Sentinox is safe and effective in the prevention of acute respiratory infections (ARI)

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 18/07/2022, Regional Ethics Committee (Comitato Etico Regionale) (Ospedale Policlinico San Martino – IRCCS, Largo Rosanna Benzi, 10 – 16132 Genova, Italy; +39 (0)10 010 555 4212; comitato.etico@hsanmartino.it), ref: 389/2022

Study design
Single-centre open-label randomized controlled interventional study

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Acute respiratory infections

Interventions
This is a post-market, randomized and controlled clinical study to assess the performance and safety of Sentinox in the prevention of ARI in a normal healthy population.
The study will consist of:
1. A screening visit (Visit 0, on-site) to sign the informed consent form (ICF). The operator will:
1.1. Review the inclusion/exclusion criteria
1.2 Record the medical history, demographic data and concomitant medications (CMs), including

previous anti-influenza, anti-COVID-19 and anti-pneumococcal vaccinations
2. A randomization visit (Visit 1, on-site) to start the surveillance period. As soon as an increase in the regional epidemiological curve of ARI is observed, screened subjects will be invited for Visit 1. At Visit 1 the operator will:
2.1. Check that the inclusion/exclusion criteria are still met, to confirm eligibility
2.2. Confirm the medical history and the concomitant medications including previous anti-influenza, anti-COVID-19 and anti-pneumococcal vaccinations
2.3. Record the result of the pregnancy testing
2.4. Randomize with a 1:1 ratio in one of 2 trial Groups:
Group A: treatment with Investigational Medical Device (IMD) performed 3 times/day for 21 days at 8 am, 2 pm and 8 pm
Group B: no IMD treatment
2.5. Invite the subjects to start:
treatment and surveillance period for 21 days, if belonging to Group A
surveillance period for 21 days, if belonging to Group B
At Visit 1, e-diary access will be delivered to both Groups to daily record Adverse Events (AEs), CMs other than treatments recorded in V1, presence of clinical features of ARI and IMD usage. The regular usage of the IMD will be recorded daily, as well as any change of the device and the reason for this. Study participants will install the Mobile App to complete the e-diary and will receive instructions to use the app. They will be instructed not to disclose their assignment to the treatment group to the blinded Investigator.
The IMD bottles needed for the 21-day treatment will be delivered to the enrolled participants of Group A, who will be trained to self-administer the treatment.
3. A surveillance 21-day period, during which:
3.1. The subjects of Group A will perform the daily treatment for 21 days
3.2. The subjects of Group A and B will fill in a daily e-diary; the subjects will receive a reminder to follow the therapy (in the morning) and to complete the e-diary (in the evening)
3.3. As soon as the subject records at least one symptom of ARI (i.e., cough, sore throat, shortness of breath, coryza as described in the European Commission guideline on relevant case definitions of communicable diseases [Commission Implementing Decision (EU) 2018/945 of 22 June 2018]) in the Mobile App, the blinded Investigator will be advised and will contact the subject by telephone within 12 hours to verify that the illness is due to ARI and to accordingly update the eCRF.
If during the phone contact the blinded Investigator judges the symptoms as correlated to ARI:
the subject will be invited to immediately stop the IMD treatment if belonging to Group A
the subject will be invited to the site for Visit 2 within 24 hours to perform a nasopharyngeal swab and to interrupt the surveillance period (Group A and B).
If during the phone contact the blinded Investigator judges the symptoms as not correlated to ARI, the subject will continue the surveillance period and the IMD treatment (if belonging to Group A) for a maximum of 21 days.
4. A final visit (Visit 2, on-site). The subject, whose symptom of ARI during the surveillance period has been confirmed by the Investigator during the phone call, will attend a site visit and be requested to:
4.1. Have a nasopharyngeal swab taken
4.2. Undergo a physical examination
4.3. Fill in the Visual Analogue Scale (VAS) score for Sentinox tolerability (for subjects of Group A)
4.4. Complete a 5-points Likert Scale for the satisfaction of Sentinox (for subjects of Group A)
4.5. Return the used and unused treatment bottles (for subjects of Group A)
The subject who does not have any symptoms of ARI during the surveillance period will perform a visit within 21±7 days from Visit 1 to:
4.6. Fill in the VAS score for Sentinox tolerability (for subjects of Group A)
4.7. Complete a 5-points Likert Scale for the satisfaction of Sentinox (for subjects of Group A)

4.8. Return the used and unused treatment bottles (for subjects of Group A)
At Visit 2, the Mobile App will be uninstalled from the electronic device used by the subjects.

Intervention Type
Device

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Sentinox

Primary outcome(s)
1. Performance of self-administered Sentinox intranasal spray in preventing ARI caused by at least one respiratory virus defined as the proportion of patients with at least one symptoms of ARI (i.e., cough, sore throat, shortness of breath, coryza) and confirmed by positive swab for at least 1 virus measured daily for 21 days
2. Performance of Sentinox in preventing ARI caused by different respiratory viruses defined as the proportion of patients with at least one symptom of ARI (i.e., cough, sore throat, shortness of breath, coryza) and confirmed by positive swab for each specific strain of virus measured daily for 21 days
3. Performance of Sentinox intranasal administration against bacterial infection defined as the proportion of patients with at least one symptom of ARI (i.e., cough, sore throat, shortness of breath, coryza), not confirmed by a positive swab for at least 1 virus, but with a positive swab for at least 1 bacterium measured daily for 21 days
4. Performance of Sentinox in preventing clinically defined ARI without microbiological confirmation defined as the proportion of patients with at least one symptom of ARI (i.e., cough, sore throat, shortness of breath, coryza), not confirmed by positive swab for any of the tested virus or bacteria measured daily for 21 days
5. Subjects' satisfaction of self-administering Sentinox measured using a 5-point Likert Scale daily for 21 days
6. Tolerability and safety of Sentinox, defined as the incidence and severity of AEs or incidents related to the use of the nasal solution, hypersensitivity and adverse reactions, daily for 21 days

The nasopharyngeal swabs will be processed with the SARS-CoV-2 kit Allplex™ 2019-nCoV Assay kit and Allplex™ respiratory panel assay. This assay kit is able to detect viruses and bacteria: influenza A, A-H1, A-H1pdm09, A-H3, B (Flu A, Flu A-H1, Flu A-H1pdm09, Flu A-H3, Flu B), respiratory syncytial virus A (RSV A), respiratory syncytial virus B (RSV B), adenovirus (AdV), enterovirus (HEV), metapneumovirus (MPV), parainfluenza (subtype PIV 1, PIV 2, PIV 3, PIV 4), Bocavirus 1/2/3/4 (HBoV), human coronaviruses (CoV NL63, 229E and OC43), human rhinovirus (HRV), sarbecovirus (E gene), SARS-CoV-2, bordetella parapertussis (BPP), bordetella pertussis (BP), chlamydophila pneumoniae (CP), haemophilus influenzae (HI), legionella pneumophila (LP), mycoplasma pneumoniae (MP), streptococcus pneumoniae (SP). The nasopharyngeal swab will be considered positive if the threshold for PCR cycles equals or is lower than 40. The nasopharyngeal swab will be performed as soon as the subject has any verified symptom of ARI and no later than 24 hours.

Key secondary outcome(s))
Proportion of patients with at least one symptom of ARI and confirmed by a positive swab for each specific strain of virus daily for 21 days

The nasopharyngeal swabs will be processed with the SARS-CoV-2 kit Allplex™ 2019-nCoV Assay kit and Allplex™ respiratory panel assay. This assay kit is able to detect viruses and bacteria: influenza A, A-H1, A-H1pdm09, A-H3, B (Flu A, Flu A-H1, Flu A-H1pdm09, Flu A-H3, Flu B), respiratory syncytial virus A (RSV A), respiratory syncytial virus B (RSV B), adenovirus (AdV), enterovirus (HEV), metapneumovirus (MPV), parainfluenza (subtype PIV 1, PIV 2, PIV 3, PIV 4), Bocavirus 1/2/3/4 (HBoV), human coronaviruses (CoV NL63, 229E and OC43), human rhinovirus (HRV), sarbecovirus (E gene), SARS-CoV-2, bordetella parapertussis (BPP), bordetella pertussis (BP), chlamydophila pneumoniae (CP), haemophilus influenzae (HI), legionella pneumophila (LP), mycoplasma pneumoniae (MP), streptococcus pneumoniae (SP). The nasopharyngeal swab will be considered positive if the threshold for PCR cycles equals or is lower than 40. The nasopharyngeal swab will be performed as soon as the subject has any verified symptom of ARI and no later than 24 hours.

Completion date
13/09/2023

Reason abandoned (if study stopped)
Participant recruitment issue

Eligibility

Key inclusion criteria
1. Informed consent form (ICF) signed
2. Aged between 18 and 64 years old at the time of the signature of ICF
3. Willing to comply with the requirements of the study protocol, attend scheduled visits and calls for the duration of the study by telephone contact and install the Mobile App to use the e-diary

Participant type(s)
Healthy volunteer

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
64 years

Sex
All

Total final enrolment
144

Key exclusion criteria

1. Reporting of any symptoms of acute respiratory infections in the 15 days preceding the Visit 1
2. Reporting the assumption of any drugs, among antiviral or antibacterial therapies, that may interfere with the study results in the 15 days preceding Visit 1
3. Presence of any relevant organic, systemic or metabolic disease (particularly significant history of cardiac, renal, neurological, psychiatric, oncology, endocrinology, metabolic or hepatic disease)
4. Immune system illnesses
5. Known drug and/or alcohol abuse
6. Individuals who are cognitively impaired and/or who are unable to give informed consent
7. Ongoing or prior participation in any other clinical trial of an experimental treatment within 30 days from Visit 1
8. Concurrent or planned treatment with other agents with actual or possible direct antiviral /antibacterial activity
9. Positive pregnancy test or breastfeeding woman
10. Known hypersensitivity to the study treatment, its metabolites, or formulation excipient
11. History of severe drug and/or food allergies
12) Any condition that, in the opinion of the Investigator, would complicate or compromise the study or well-being of the subject

Date of first enrolment
09/11/2022

Date of final enrolment
09/02/2023

Locations

Countries of recruitment
Italy

Study participating centre
Ospedale Policlinico San Martino IRCCS
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16132

Sponsor information

Organisation
Applied Pharma Research (Switzerland)

ROR
https://ror.org/05c2q0q08

Funder(s)

Funder type
Industry

Funder Name
APR Applied Pharma Research SA

Results and Publications

Individual participant data (IPD) sharing plan
Current IPD sharing plan as of 18/12/2023:
The main limitation of this study is represented by the reduced number of patients available for participation. Considering the anticipated conclusion of the study recruitment, no statistical conclusive interpretation should be done. Results collected in the present study may be useful to design additional clinical trials in the future.

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Previous IPD sharing plan:
The datasets generated and/or analysed during the current study will be published as a supplement to the results publication.

IPD sharing plan summary
Not expected to be made available