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Exploring the link between small airway disease and cardiovascular disease in patients with chronic obstructive pulmonary disease

Submission date
21/02/2023

Recruitment status
No longer recruiting

Registration date
15/03/2023

Overall study status
Completed

Last Edited
04/03/2026

Condition category
Respiratory

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

Plain English summary of protocol

Background and study aims
To date, no studies have been carried out to assess the relationship between cardiovascular disease (CVD) and chronic obstructive pulmonary disease (COPD) according to the presence of small airway disease (SAD). SAD is a condition of small airways leading to hyperinflation, barrel chest, increased symptoms and disease progression. The CLAIM study is the only well-designed study correlating cardiovascular events and hyperinflation providing an indirect indication for dual bronchodilator therapy in hyperinflated COPD patients. Briefly, dual bronchodilation therapy significantly improved cardiac function as measured by left-ventricular end-diastolic volume. Unfortunately, CLAIM being a randomized controlled trial does not provide information on the potential impact of comorbidities in these patients. Therefore, the main objective of this study (the ARCADIA study) is to assess the risk of CVD in COPD patients with SAD in a real-life setting. In these patients, the correlation between CVD, mortality, and acute exacerbations in COPD will be assessed.

Who can participate?
Patients aged ≥40 years old with a clinical and functional diagnosis of COPD and no acute exacerbation of COPD in the last 3 months

What does the study involve?
The ARCADIA Study is a one-year study of 500 COPD patients with SAD from 20 pulmonary centers in Italy. The study will occur between January 2023 and January 2024 and will involve 3 visits for each patient.

What are the possible benefits and risks of participating?
The patients participating in the ARCADIA study will be well-monitored from a respiratory and cardiovascular point of view and they will reach a greater knowledge concerning the real status of their disease and comorbidities. There aren't risks for the patients, because the ARCADIA study is an observational, non-pharmacological, non-interventional study in which the clinicians will administer a survey.

Where is the study run from?
Tor Vergata General Hospital Foundation (Fondazione Policlinico Tor Vergata), Rome (Italy)

When is the study starting and how long is it expected to run for?
September 2022 to January 2025

Who is funding the study?
1. Ministry of University and Research (MUR) National Recovery and Resilience Plan (PNRR) (M4C2I1.3 PE6 project PE00000019 Heal Italia) (Italy)
2. Società Italiana Pneumologia (SIP), Study Group COPD and Comorbidities (Italy)

Who is the main contact?
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Additional identifiers

Study information

Scientific Title
Assessing the relationship between cardiovascular and small airway disease and acute events in COPD: the ARCADIA study protocol

Acronym
ARCADIA

Study objectives
To the best of our knowledge, to date no studies have been carried out an assessment the relationship between cardiovascular disease (CVD) and chronic obstructive pulmonary disease (COPD) according to the presence of small airway disease (SAD). Therefore, the main objective of this study will be to assess the risk of CVD in COPD patients with SAD in a real-life setting. The correlation between CVD, mortality and acute exacerbation of COPD will be also evaluated in events in these patients.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 20/12/2022, Independent Ethics Committee (Comitato Etico Indipendente) (Tor Vergata General Hospital [Policlinico Tor Vergata], Viale Oxford 81, Rome, Italy; +39 0620900035; comitato.etico@ptvonline.it), ref: R.S 259.22

Primary study design
Observational

Study design
Prospective multicenter pilot observational cohort study

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Cardiovascular disease (CVD) and small airway disease (SAD) in patients with chronic obstructive pulmonary disease (COPD)

Interventions
The ARCADIA study is a prospective, multicenter, pilot, observational, cohort study that will be conducted in ≥20 pulmonary centers from all over Italy. The goal of this study is to enroll ≥500 patients. The study will consist of an observational period lasting up to 52 weeks, with the possibility of extending the observation up to 3 years for each patient. Between January 2023 and January 2024, patients will be enrolled on the study.

Patients will attend the centres during the routine outpatient visits scheduled for their pathology. COPD patients will be recruited according to the ARCADIA inclusion/exclusion criteria and according to their willingness to participate in this study. Enrolled patients will be provided written informed consent to participate in the study.

The study will be composed of 3 different visits, as follows: visit 1 (first patient evaluation at time 0, in person), visit 2 (second visit at time 6±1 month from visit 1, phone call), visit 3 (third

visit at time 12±2 months from visit 1, phone call). Questionnaires used during visit 1 include the modified British Medical Research Council Questionnaire (mMRC) and the COPD Assessment Test (CAT). During the phone calls in visits 2 and 3, bespoke questionnaires will be used. Specifically, information regarding AECOPD, hospitalizations, SARS-CoV2 infections, and current pharmacological therapy will be collected.

The main endpoint will be to assess the risk of CVD in patients with COPD affected by SAD; the secondary endpoints will be to assess mortality, exacerbation risk and exacerbation characteristics in the same patients.

Intervention Type
Other

Primary outcome(s)
Cardiovascular disease risk in patients with COPD affected by small airway disease (SAD) measured using a bespoke questionnaire at visit 2 (after 6±1 months from visit 1) and visit 3 (after 12±2 months from visit 1)

Key secondary outcome(s)
Mortality, exacerbation risk and exacerbation characteristics in the same patients measured using a bespoke questionnaire at visit 2 (after 6±1 months from visit 1) and visit 3 (after 12±2 months from visit 1)

Completion date
31/01/2025

Eligibility

Key inclusion criteria
1. Clinical and functional diagnosis of COPD
2. Forced expiratory volume in the 1st second (FEV1)/forced vital capacity (FVC) ratio <0.7 and /or FEV1/FVC (or FEV1/vital capacity [VC]) < lower limit of normal (LLN)
3. Clinical stability ≥3 months (no mild moderate or severe exacerbations)
4. Both genders
5. Age ≥40 years
6. Smoking history ≥10 p/y

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
40 Years

Upper age limit

100 Years

Sex
All

Total final enrolment
575

Key exclusion criteria
1. Previous or current history of bronchial asthma
2. Restrictive lung disease or interstitial lung disease
3. Active or under treatment neoplasms
4. Shift of inhalation therapy in the 3 months prior to study entry
5. Inability to perform reliable and repeatable pulmonary function tests
6. Oxygen therapy >18 hours a day
7. Diagnosed with clinically significant bronchiectasis (overt diagnosis of bronchiectasis on chest computed tomography [CT] which is the patient's primary diagnosis)
8. Severe obstructive sleep apnea syndrome (apnea/hypopnea index >30/h)
9. Pregnancy

Date of first enrolment
31/01/2023

Date of final enrolment
31/01/2024

Locations

Countries of recruitment
Italy

Study participating centre
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Study participating centre
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Sponsor information

Organisation
University of Rome Tor Vergata

ROR
https://ror.org/02p77k626

Funder(s)

Funder type
Government

Funder Name
Ministero dell'Università e della Ricerca

Alternative Name(s)

Ministry for Universities and Research, Italy, MUR Ministero dell'Università e della Ricerca, Ministry for Universities and Research, Ministero Università e Ricerca, Italian Ministero Università e Ricerca, MUR, M.U.R.

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
Italy

Funder Name
Società Italiana di Pneumologia

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in a non-publically available repository. The electronic Case Report Forms (eCRF) will be stored in an Excel file format.
• The name of the repository: To be defined
• A persistent weblink and the process for requesting access (if non-publicly available): To be defined
• Timing for availability: 24 months
• Whether consent from participants was required and obtained: Yes
• Comments on data anonymization: First two letters of name plus first two letters of surname, plus year of birth plus centre code.
• Any ethical or legal restrictions: Not applicable
• Any additional comments: Not applicable

IPD sharing plan summary
Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol article		04/07/2023	07/07/2023	Yes	No
Protocol file			28/02/2023	No	No