

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

<b>Submission date</b>	<b>Recruitment status</b>	<input type="checkbox"/> Prospectively registered
21/02/2023	No longer recruiting	<input checked="" type="checkbox"/> Protocol
<b>Registration date</b>	<b>Overall study status</b>	<input type="checkbox"/> Statistical analysis plan
15/03/2023	Completed	<input type="checkbox"/> Results
<b>Last Edited</b>	<b>Condition category</b>	<input type="checkbox"/> Individual participant data
07/07/2023	Respiratory	<input type="checkbox"/> 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?

Fondazione Policlinico Tor Vergata, studioarcadia@med.uniroma2.it (Italy)

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## Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

**ClinicalTrials.gov (NCT)**

Nil known

**Protocol serial number**

Nil known

## 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

**Study design**

Prospective multicenter pilot observational cohort study

**Primary study design**

Observational

**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  $6\pm1$  month from visit 1, phone call), visit 3 (third visit at time  $12\pm2$  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  $6\pm1$  months from visit 1) and visit 3 (after  $12\pm2$  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  $6\pm1$  months from visit 1) and visit 3 (after  $12\pm2$  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  $\geq 3$  months (no mild moderate or severe exacerbations)
4. Both genders
5. Age  $\geq 40$  years
6. Smoking history  $\geq 10$  p/y

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

40 years

**Sex**

All

**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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**Study participating centre**

**Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico**  
Via Francesco Sforza, 35  
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**Study participating centre**

**Istituto clinico Humanitas**  
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**Study participating centre**

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**Azienda Ospedaliera Policlinico Paolo Giaccone**  
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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-publicly 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?
<a href="#">Protocol article</a>		04/07/2023	07/07/2023	Yes	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes
<a href="#">Protocol file</a>		28/02/2023		No	No