

Tumor volume measurements vs diameter-based measurements (mRECIST) for response evaluation in pleural mesothelioma

Submission date 31/12/2023	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 15/01/2024	Overall study status Ongoing	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 15/01/2024	Condition category Cancer	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

Pleural mesothelioma (PM) is an aggressive type of cancer that arises from the pleural mesothelium, a thin layer covering the lungs and chest wall. The aim of this study is to investigate whether using the tumour volume makes the response evaluation more reliable compared to the current mRECIST criteria (diameter-based measurements).

Who can participate?

Patients aged 18 years and over with pleural mesothelioma

What does the study involve?

All patients will be treated by their own treating physician. However, during this study, an additional response evaluation based on tumor volume will be conducted. Treatment decisions will not be based on this evaluation.

What are the possible benefits and risks of participating?

There are no side effects nor possible benefits for the patients when participating. The researchers will gain more knowledge about the response evaluation system.

Where is the study run from?

Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (Netherlands)

When is the study starting and how long is it expected to run for?

June 2023 to December 2025

Who is funding the study?

Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital (Netherlands)

Who is the main contact?

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Contact information

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Public, Scientific

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

IRBd23-265

Study information

Scientific Title

COMET trial: Comparison of pleural mesothelioma evaluation using volume measurements with an artificial intelligence program to the mRECIST v1.1 criteria, a prospective trial

Acronym

COMET

Study objectives

ARTIMES yields an equal or higher interobserver agreement between different radiologists compared to mRECIST v1.1.

Ethics approval required

Ethics approval required

Ethics approval(s)

approved 04/12/2023, Institutional Review Board (IRB) The Netherlands Cancer Institute (Plesmanlaan 121, Amsterdam, 1066 CX, Netherlands; +31 (0)20 51291; IRB@nki.nl), ref: IRBd23-265

Study design

Prospective blinded comparative non-inferiority single-centre feasibility study

Primary study design

Observational

Study type(s)

Diagnostic

Health condition(s) or problem(s) studied

Pleural mesothelioma

Interventions

This is a prospective blinded comparative non-inferiority single-center feasibility study. Three radiologists will review every CT scan of adult patients with pleural mesothelioma referred to the tertiary center according to the mRECIST v1.1 and ARTIMES. Confirmation bias could occur if a radiologist assigns progressive disease (PD) following mRECIST v1.1 and is afterwards segmenting extra volume to ensure a PD for ARTIMES as well. To reduce this bias, the same CT scan needs to be reviewed for mRECIST and ARTIMES on different days with a washout of at least 4 weeks. The sequence in which both methods are used will be random. Reviewers will be blinded for their own results and for the results of the other reviewers.

Intervention Type

Other

Primary outcome(s)

The interobserver agreement among experts employing the ARTIMES criteria and the gold standard (mRECIST v1.1 criteria), measured at the end of the study using kappa

Key secondary outcome(s)

1. Time needed to measure response evaluation in minutes between the ARTIMES vs mRECIST v1.1 criteria, measured in minutes for every scan at every evaluation point
2. Time until partial response (PR) and progressive disease (PD) in days between the ARTIMES vs mRECIST v1.1 criteria, measured in days at every evaluation point
3. The response evaluation of the treating physician with the ARTIMES criteria and the mRECIST v1.1. criteria per evaluation point, compared at every evaluation point
4. The performance of the AI in segmenting pleural mesothelioma tumour volume vs the final segmentation of the reviewers, compared at every evaluation point

Completion date

31/12/2025

Eligibility

Key inclusion criteria

1. Histology or cytology-proven non-resectable pleural mesothelioma
2. Age ≥ 18 years
3. Availability of a baseline CT thorax with contrast before the start of new systemic treatment with a slice increment of ≤ 3 mm on the CT scan
4. Availability of at least one follow-up scan (the lungs must be fully contained in the image)

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Sex

All

Key exclusion criteria

1. CT scans with lungs not fully imaged
2. No histology-proven pleural mesothelioma

Date of first enrolment

01/12/2023

Date of final enrolment

01/01/2025

Locations

Countries of recruitment

Netherlands

Study participating centre

Antoni van Leeuwenhoek hospital / NKI

Plesmanlaan 121

Amsterdam

Netherlands

1066 CX

Sponsor information

Organisation

Antoni van Leeuwenhoek Hospital

Funder(s)

Funder type

Hospital/treatment centre

Funder Name

Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital

Results and Publications

Individual participant data (IPD) sharing plan

The data will be stored for at least 20 years and as long as proven useful for scientific research.

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes