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Pre and postoperative analysis of voice as a marker of respiratory function

Submission date
11/11/2025

Recruitment status
Recruiting

Registration date
12/11/2025

Overall study status
Ongoing

Last Edited
28/11/2025

Condition category
Surgery

[X] 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
The aim of this study is to analyze the voice recording of patients 18-64 years old receiving general anesthesia pre and postoperatively using artificial intelligence, in order to determine whether it correlates with changes in pulmonary function following general anesthesia, endotracheal intubation, and mechanical ventilation during surgery.

Who can participate?
The study will include 100 male and female patients aged 18 to 65 years who are scheduled to undergo surgical procedures under general anesthesia.

What does the study involve?
Patients' voice will be recorded before surgery, as well as at 1, 6, and 24 hours postoperatively. Oxygen saturation and the duration of surgery will also be recorded

What are the possible benefits and risks of participating?
Benefits: personalized assessment of pulmonary function based on voice recording and SpO2 measurements
Risks: surgery-related risks

Where is the study run from?
1st Department of Anesthesiology, Aretaieion University Hospital (Greece)

When is the study starting and how long is it expected to run for?
The study is expected to start recruiting patients on the 1st of December 2025 and is expected to complete 100 patients on the 30th of June 2026

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Aliki Tympa, MD, PhD, Assistant Professor of Anesthesiology, National and Kapodistrian University of Athens
alikitympa@med.uoa.gr

Contact information

Type(s)
Public, Scientific, Principal investigator

Contact name
Dr Aliki Tympa

Contact details
Faculty of Medicine
National and Kapodistrian University of Athens
Aretaieion University Hospital
76 Vasilissis Sofias Avenue
Athens
Greece
11528
+30 (0)2107286195
alikitympa@med.uoa.gr

Additional identifiers

Study information

Scientific Title
Voice as a biomarker of respiratory function pre and postoperatively

Study objectives
The aim of this study is to analyze the patient’s voice preoperatively and compare it with his voice postoperatively using artificial intelligence, in order to determine whether it correlates with changes in pulmonary function following general anesthesia, endotracheal intubation, and mechanical ventilation during surgery

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 24/07/2025, Aretaieion University Hospital Ethics Committee (76 Vas.Sofias avenue, Athens, 11528, Greece; +30 2107286130; bxeir@med.uoa.gr), ref: 705/24-07-2025

Study design
Single centered, cross-sectional analytical study

Primary study design

Observational

Study type(s)
Prevention

Health condition(s) or problem(s) studied
Prevention of respiratory dysfunction in patients who received general anesthesia

Interventions
Participants voices are recorded pre and post-operatively and analyzed with an artificial intelligence voice analyzer. Patients are then subjected to various operations. Their oxygen saturation levels are measured pre- and postoperatively through a pulse oxymeter (non-invasive monitoring). Observation begins on the morning of the scheduled operation and at 1, 6 and 24 hours postoperatively. There is no further follow up beyond the 24hour time period.

Intervention Type
Other

Primary outcome(s)
Alterations in voice recordings measured through an artificial intelligence program pre and post-operatively

Key secondary outcome(s))
Oxygen saturation measured through pulse oxymeter pre and post operatively.
Total surgical time measured using patient records.

Completion date
30/06/2026

Eligibility

Key inclusion criteria
Patients 18-65 years old receiving general anesthesia

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 years

Upper age limit
65 years

Sex

All

Total final enrolment
0

Key exclusion criteria
Vocal cord paralysis

Date of first enrolment
01/12/2025

Date of final enrolment
30/06/2026

Locations

Countries of recruitment
Greece

Study participating centre
Aretaieion University Hospital
76 Vas. Sofias avenue
Athens
Greece
11528

Sponsor information

Organisation
National and Kapodistrian University of Athens

ROR
https://ror.org/04gnjpq42

Funder(s)

Funder type
Not defined

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during an/or analysed during the current study will be available upon request (Assistant Professor A.Tympa, email: alikitympa@med.uoa.gr

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