

# To determine whether the powered endopath stapler device reduces the incidence of prolonged air leak and duration of chest tube drainage after lung volume reduction surgery

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<b>Registration date</b> 04/12/2014	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 01/09/2020	<b>Condition category</b> Respiratory	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Chronic obstructive pulmonary disease (COPD) is the name used to refer to a number of progressive devastating and debilitating lung diseases, which includes chronic bronchitis, emphysema and chronic obstructive airways disease. People that have COPD typically feel breathless after physical activity, have a persistent cough with phlegm and suffer frequently from chest infections. There is no cure for the condition, but making lifestyle changes (such as stopping smoking) and taking medications (inhalers and/or tablets) can alleviate symptoms. Pulmonary rehabilitation, a programme of physical exercise and education, can also help people manage their condition and lead to improvements in health. However, in the most severe cases, the only options are often a lung transplant or lung-volume-reduction surgery (LVRS). The use of lung transplantation as a treatment is limited due to the shortage of donors and unsatisfactory results in elderly people suffering from other diseases at the same time. LVRS involves removing the most badly affected part of the lungs in order to improve function. Studies have shown that it reduces shortness of breath and improves lung function and quality of life in patients with severe pulmonary emphysema. One of the most common complications of the procedure, however, is air leakage, which is caused by air leaking into the chest cavity. Patients with severe emphysema are at high risk of developing prolonged air leak after the surgery. Prolonged air leak is defined as air leak lasting more than 7 days after the surgery. It causes increased medical and non-medical costs, complications associated with pain from the presence of chest tubes, immobilization, risk of infection and may even lead to further surgery. It therefore represents a major limiting factor for discharge from the hospital. Here, we have set up a study to test new techniques to avoid or to reduce the occurrence of prolonged air leak after LVRS.

### Who can participate?

Adults (aged at least 18) with severe pulmonary emphysema and about to undergo LVRS.

### What does the study involve?

Participants are randomly allocated to undergo LVRS with the use of either the Echelon FLEX™

Powered ENDOPATH® Stapler or Echelon FLEX™ ENDOPATH® Stapler. After surgery, we look at the data from both groups and compare the amount of air leak, duration of chest tube drainage and how successful the surgery is at treating the condition.

What are the possible benefits and risks of participating?

We hope that the technical advantage of powered stapler may help people who have LVRS using this technique with their severe emphysema symptoms. We expect that the patients will be discharged from hospital sooner and transferred earlier to a rehabilitation clinic.

Where is the study run from?

University Hospital of Basel, Division of Thoracic Surgery (Switzerland)

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

July 2014 to July 2015

Who is funding the study?

University Hospital of Basel, Division of Thoracic Surgery (Switzerland)

Who is the main contact?

Katarzyna Furrer  
FurrerK@uhbs.ch

## Contact information

### Type(s)

Scientific

### Contact name

Dr Katarzyna Furrer

### Contact details

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## Additional identifiers

### Protocol serial number

N/A

## Study information

### Scientific Title

Powered endopath stapler device reduces the incidence of prolonged air leak and duration of chest tube drainage after lung volume reduction surgery: A prospective randomized blinded study

## **Acronym**

N/A

## **Study objectives**

With powered stapler technic (Echelon FLEX™ Powered ENDOPATH® Stapler) in treatment group, we expect a further decrease of the air leak, duration of chest tube drainage and enhancement of the outcome in comparison to control group with non-powered stapler technic. (Echelon FLEX™ ENDOPATH® Stapler).

## **Ethics approval required**

Old ethics approval format

## **Ethics approval(s)**

Swiss Ethics Committee Norwest- and Central Switzerland; 02/07/2014; Ref. EKNZ 2014-074

## **Study design**

One-year prospective randomized blinded study

## **Primary study design**

Interventional

## **Study type(s)**

Treatment

## **Health condition(s) or problem(s) studied**

Lung emphysema, chronic obstructive pulmonary disease

## **Interventions**

Bilateral lung-volume-reduction-surgery (LVRS) by video-assisted thoracic surgery (VATS) with use of powered versus non-powered Endopath stapler from Echelon for left or right side of the lung. Before LVRS this side was randomly assigned in the operating room to the control (non-powered Echelon) or the treatment group (powered Echelon) by opening of a sealed envelope.

## **Intervention Type**

Procedure/Surgery

## **Primary outcome(s)**

1. Incidence and volume of air leaks
2. Duration of chest tube drainage of the each side

## **Key secondary outcome(s)**

1. Duration and volume of air leak postoperative as well as twice a day, each morning and each afternoon until removal of the chest tubes
2. Operative time, and postoperative complications grade e.g. necessity of reoperation, hospitalisations time

**Completion date**

03/07/2015

## Eligibility

**Key inclusion criteria**

1. Adult patients with non-bullous pulmonary emphysema were included when they were severely symptomatic despite optimal medical therapy
2. Had severe air flow obstruction (forced expiratory volume in 1 second (FEV1) of 40% of predicted value)
3. Had pulmonary hyperinflation (residual volume (RV) of 200% of predicted value, RV/total lung capacity of 0.60)
4. Minimum age of 18 years
5. Able to consent and indication for bilateral LVRS with a signed informant consent

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 years

**Sex**

All

**Total final enrolment**

20

**Key exclusion criteria**

1. Patients with bullous pulmonary emphysema
2. Severely impaired carbon dioxide diffusing capacity (20% of predicted value)
3. Significant coronary artery disease
4. Under age of 18 years
5. Persons unable to consent and without a signed informant consent

**Date of first enrolment**

02/07/2014

**Date of final enrolment**

03/07/2015

## Locations

**Countries of recruitment**

Switzerland

**Study participating centre**  
**Division of Thoracic Surgery**  
University Hospital of Basel  
Basel  
Switzerland  
CH-4031

## Sponsor information

**Organisation**  
University Hospital Basel

**ROR**  
<https://ror.org/04k51q396>

## Funder(s)

**Funder type**  
University/education

**Funder Name**  
University Hospital of Basel (Switzerland) - Department of Thoracic Surgery

## Results and Publications

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**  
Not provided at time of registration