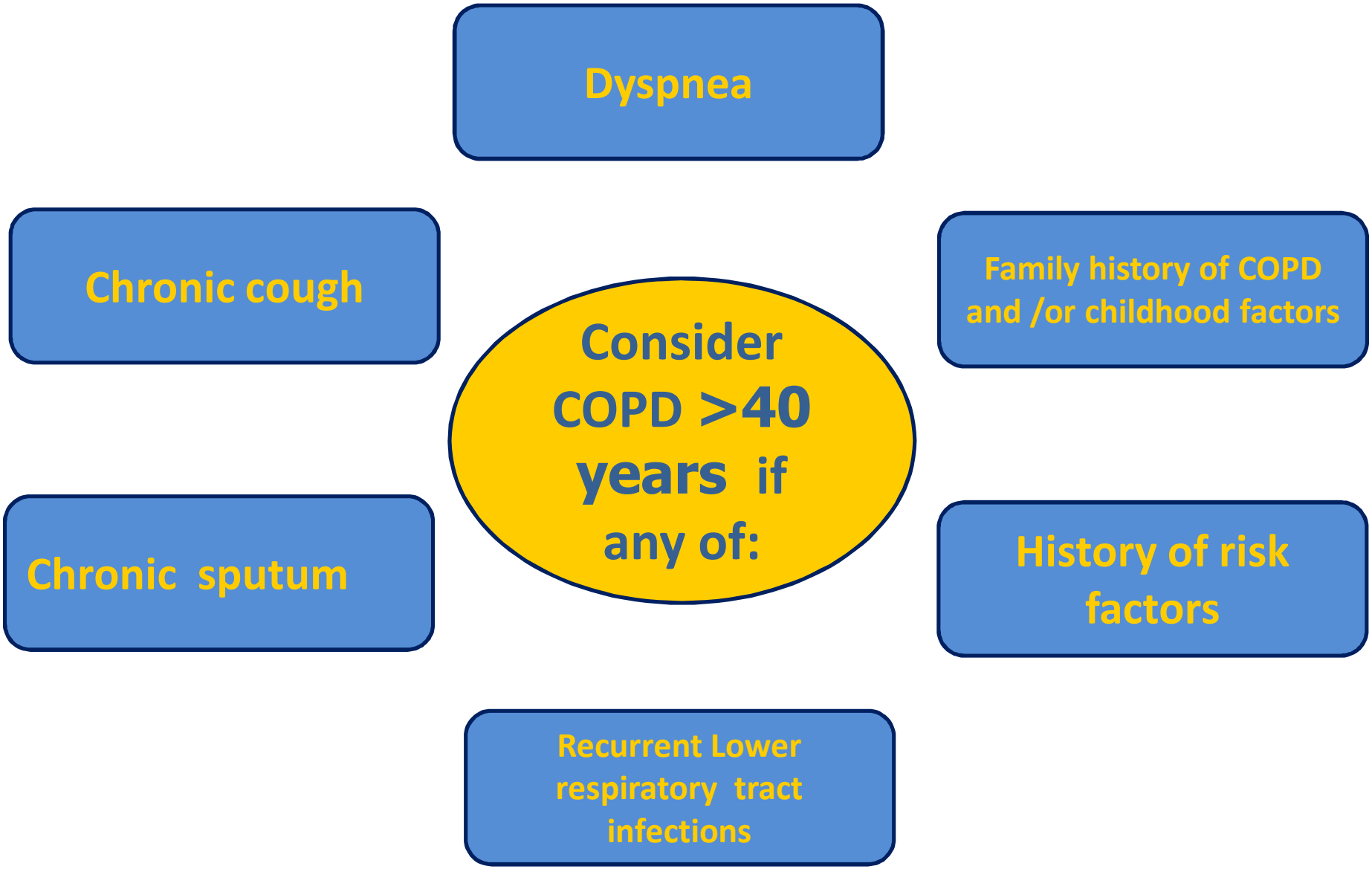
د غانيا جديد

نائب عميد كلية الطب للشؤون العلمية

STABLE COPD MANAGEMENT

PROF GHANIA JDID
DEPUTY DEAN FOR SCIENTIFIC AFFAIRS
FACULTY OF MEDECINE
UNIVERSITY AL BAATH

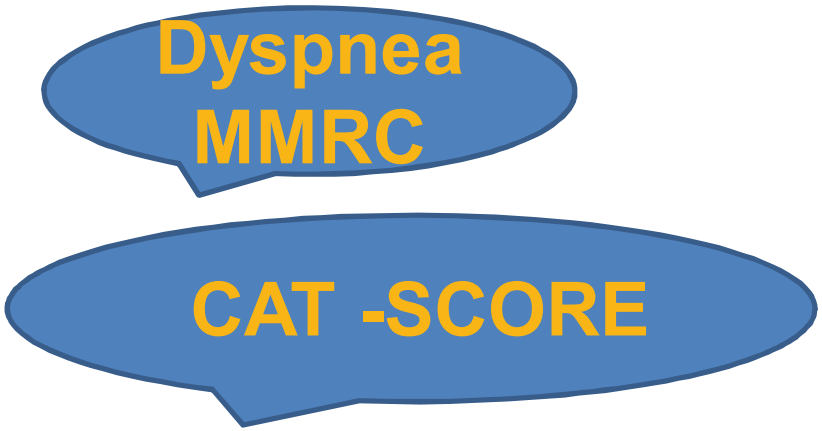

Dyspnea
Chronic cough
Family history of COPD and /or childhood factors
Consider COPD >40 years if any of:
Chronic sputum
History of risk factors
Recurrent Lower respiratory tract infections

Diagnosis

FEV1/FVC <0.7
Post - Bronchodilator

Classification

- **Severity of airflow limitation GOLD**
- **Moderate or Severe Exacerbation History**
- **Assessment of symptoms:**



CLASSIFICATION OF AIRFLOW LIMITATION SEVERITY IN COPD (BASED ON POST-BRONCHODILATOR FEV_1)

In patients with FEV1/FVC < 0.70:

GOLD 1:	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2:	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3:	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4:	Very Severe	$FEV_1 < 30\%$ predicted

MODIFIED MRC DYSPNEA SCALE[a]

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | Grades 0 - 4

mMRC Grade 0.	I only get breathless with strenuous exercise.	☐
mMRC Grade 1.	I get short of breath when hurrying on the level or walking up a slight hill.	☐
mMRC Grade 2.	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level.	☐
mMRC Grade 3.	I stop for breath after walking about 100 meters or after a few minutes on the level.	☐
mMRC Grade 4.	I am too breathless to leave the house or I am breathless when dressing or undressing.	☐

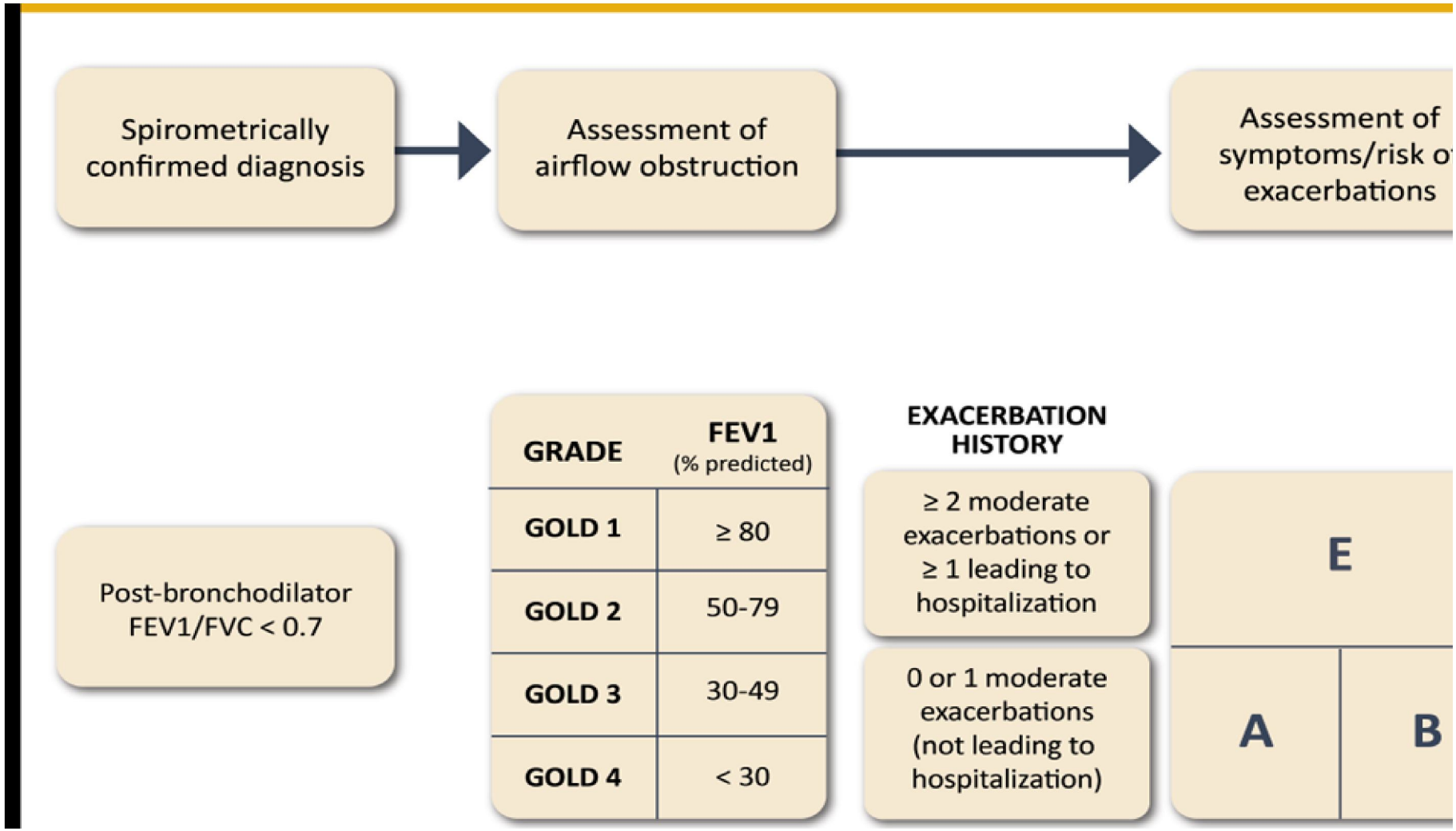
CAT™ ASSESSMENT

For each item below, place a mark (x) in the box that best describes you currently.
Be sure to only select one response for each question.

EXAMPLE: I am very happy	0	X	2	3	4	5	**I am very sad**
I never cough	0	1	2	3	4	5	I cough all the time
I have no phlegm (mucus) in my chest at all	0	1	2	3	4	5	My chest is completely full of phlegm (mucus)
My chest does not feel tight at all	0	1	2	3	4	5	My chest feels very tight
When I walk up a hill or one flight of stairs I am not breathless	0	1	2	3	4	5	When I walk up a hill or one flight of stairs I am very breathless
I am not limited doing any activities at home	0	1	2	3	4	5	I am very limited doing activities at home
I am confident leaving my home despite my lung condition	0	1	2	3	4	5	I am not at all confident leaving my home because of my lung condition
I sleep soundly	0	1	2	3	4	5	I don't sleep soundly because of my lung condition
I have lots of energy	0	1	2	3	4	5	I have no energy at all

SCOR

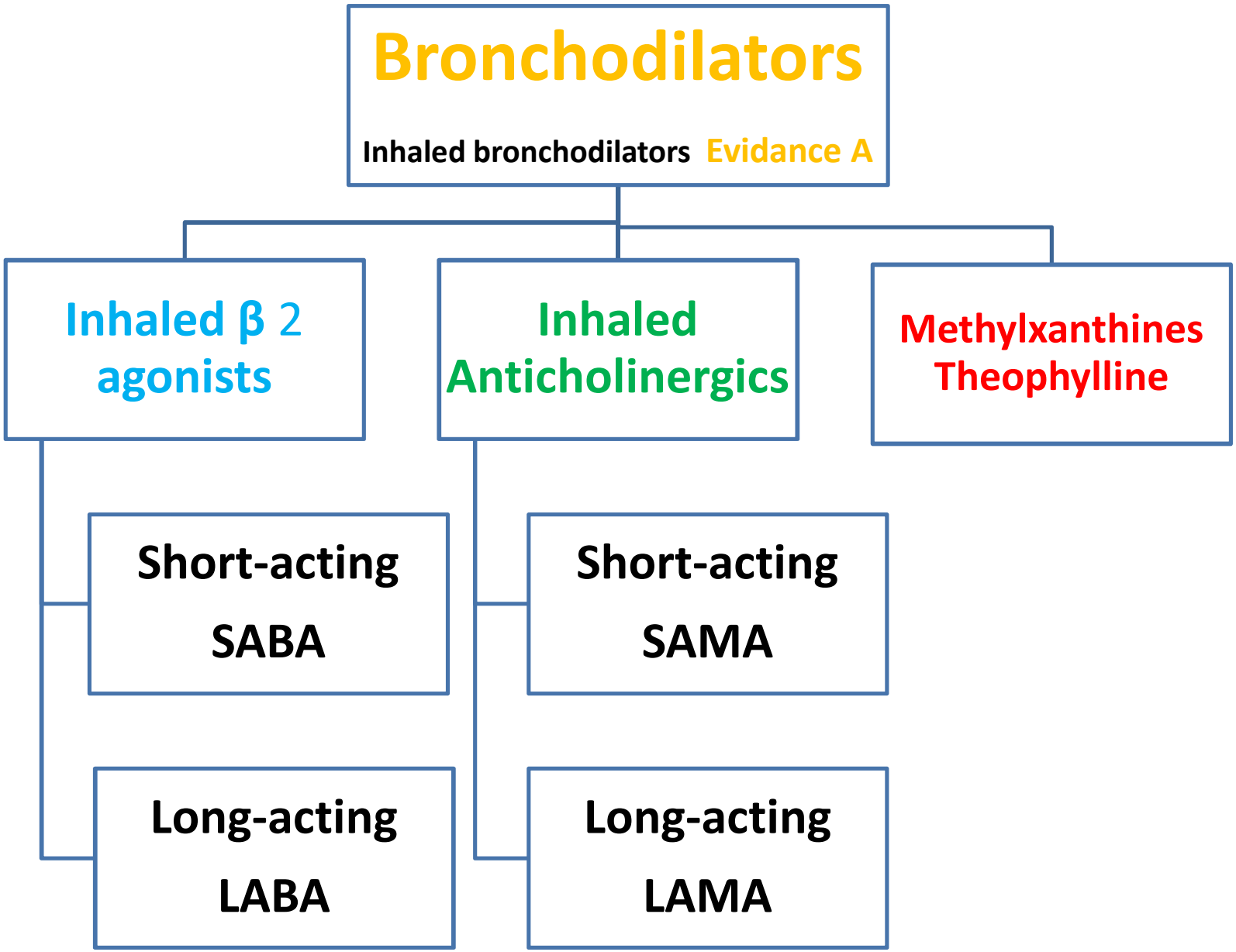
CLASSIFICATION GOLD A B E



MANEGEMENT OF STABLE COPD


Improve patient symptoms
Improve exercise tolerance
quality of life
AIMES
Disease progression
exacerbations
mortality

Pharmacological Treatment


Bronchodilators
Inhaled bronchodilators Evidance A
Inhaled β 2 agonists
Inhaled Anticholinergics
Methylxanthines Theophylline
Short-acting SABA
Long-acting LABA
Short-acting SAMA
Long-acting LAMA

Combination bronchodilator therapy:

- SABA + SAMA → improving FEV_1 and symptoms **Evidance A**

- LABA +LAMA → improved lung function symptoms and quality of life **Evidance A**

Combination bronchodilator therapy:

- Long acting agents are preferred over short acting agents **Evidance A**

- LAMAS have greater effect on exacerbations reduction compared to LABA **Evidance A**

LABA +LAMA → ↓↓ exacerbations compared to monotherapy **Evidance B**

Anti-inflammatory agents

- **Inhaled corticosteroids (ICS)**
- **Not as monotherapy Evidance A**
- (LABA/LAMA/ICS and LABA/ICS:

- Triple TT LABA+LAMA+ICS more effective

Evidance A

· STRONG SUPPORT ·	· CONSIDER USE ·	· AGAINST USE ·
• History of hospitalization(s) for exacerbations of COPD#	• 1 moderate exacerbation of COPD per year#	• Repeated pneumonia events

Anti-inflammatory agents

- **Oral corticosteroids not recommended**

side effect **Evidance A** , NO benefits **Evidance C**

- **Phosphodiesterase-4 (PDE4) inhibitors**
- (Roflumilast)→ Improvelung function +reduce exacerbations **Evidance A**
- in addition to LABA or LABA+ICS →

Anti-inflammatory agents

- Macrolides (Azithromycin) :

reduce exacerbations over one year Evidence A

- Long- term Azithromycin increase bacterila resistance Evidence A

Other Pharmacological Treatement

- Alpha 1 antitrypsin→Emphysema +severe hereditary alpha-1 antitrypsin deficiency
- Anti tussive → not recommended
- Drugs of primary HTAP→→not recommended

Initial Pharmacological Treatment

Figure 4.2

≥ 2 moderate exacerbations or ≥ 1 leading to hospitalization

GROUP E

LABA + LAMA*

consider LABA+LAMA+ICS if blood eos ≥ 300*

0 or 1 moderate exacerbations (not leading to hospital admission)

GROUP A

A bronchodilator

mMRC 0-1, CAT < 10

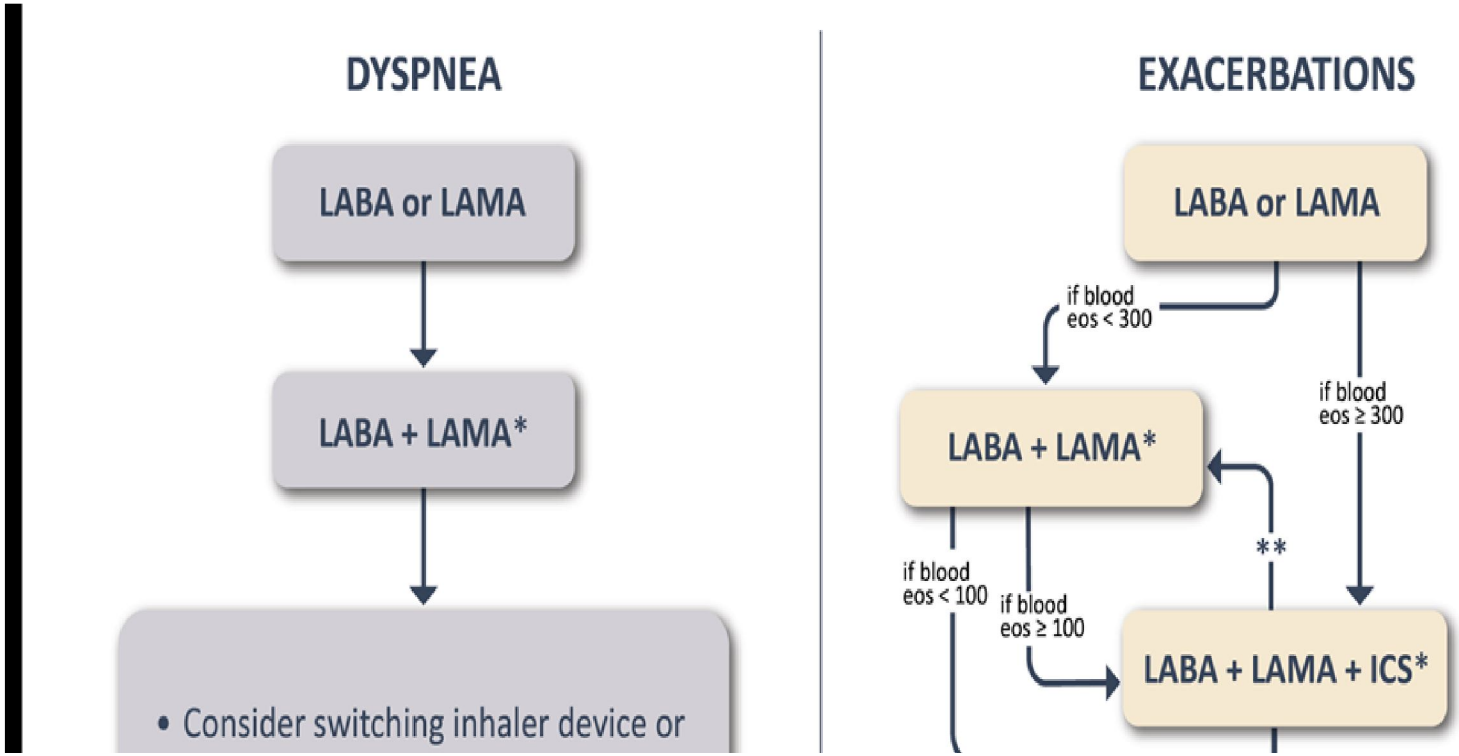
GROUP B

LABA + LAMA*

mMRC ≥ 2, CAT ≥ 10

*single inhaler therapy may be more convenient and effective than multiple inhalers

Follow up pharmacological treatment



Non Pharmacological Treatment

- Smoking Cessation
- Reduction of other risk factors
- Vaccination
- Education
- Pulmonary Rehabilitation

- Nutrition
- Treatment of Hypoxemia
- Treatment Of Hypercapnia
- Intervention Bronchoscopy And Surgery

Oxygen Therapy

- PO2<55 mmhg or
- 55< po2<60mmhg:
  right heart failure or
  erythrocytosis

Treatment of Hypercapnia

BIPAP

long-term non-invasive ventilation

↓ **mortality**

↓ **re-hospitalization**

Surgery

- **Lung volume reduction Surgery LVRS**
  → **Upper Lobe- Emphysema**

- **Surgical Bullectomy**

- **Lung Transplantation**

Lung Transplantation

- **Severe Emphysema** one of :
- History of hospitalisation for **exacerbation** with acute **hypercapnia**

- **HTP** or cor pulmonale despite O2 therapy

- **FEV1** < 20% and either DLCO < 20% or
- Homogenous distribution of emphysema

Bronchoscopic Interventions
Bronchoscopic Lung Volume Reduction
BLVR

↓ end –expiratory Lung Volume
At **6-12** Months following treatment

↑ exercise tolerance
Quality of life
Lung Function

Bronchoscopic Interventions

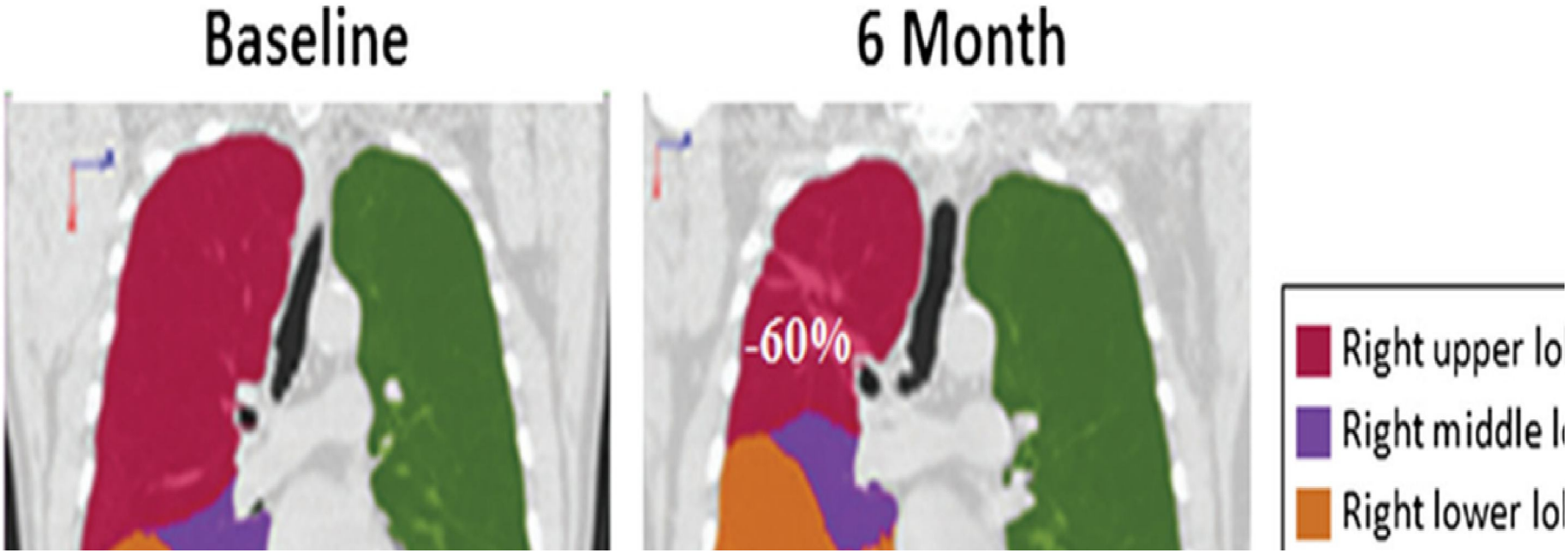
Vapor Ablation

Lung Coils

Endobronchial Valves FDA approved

Vapor Ablation

Vapor Ablation



Lung Coils

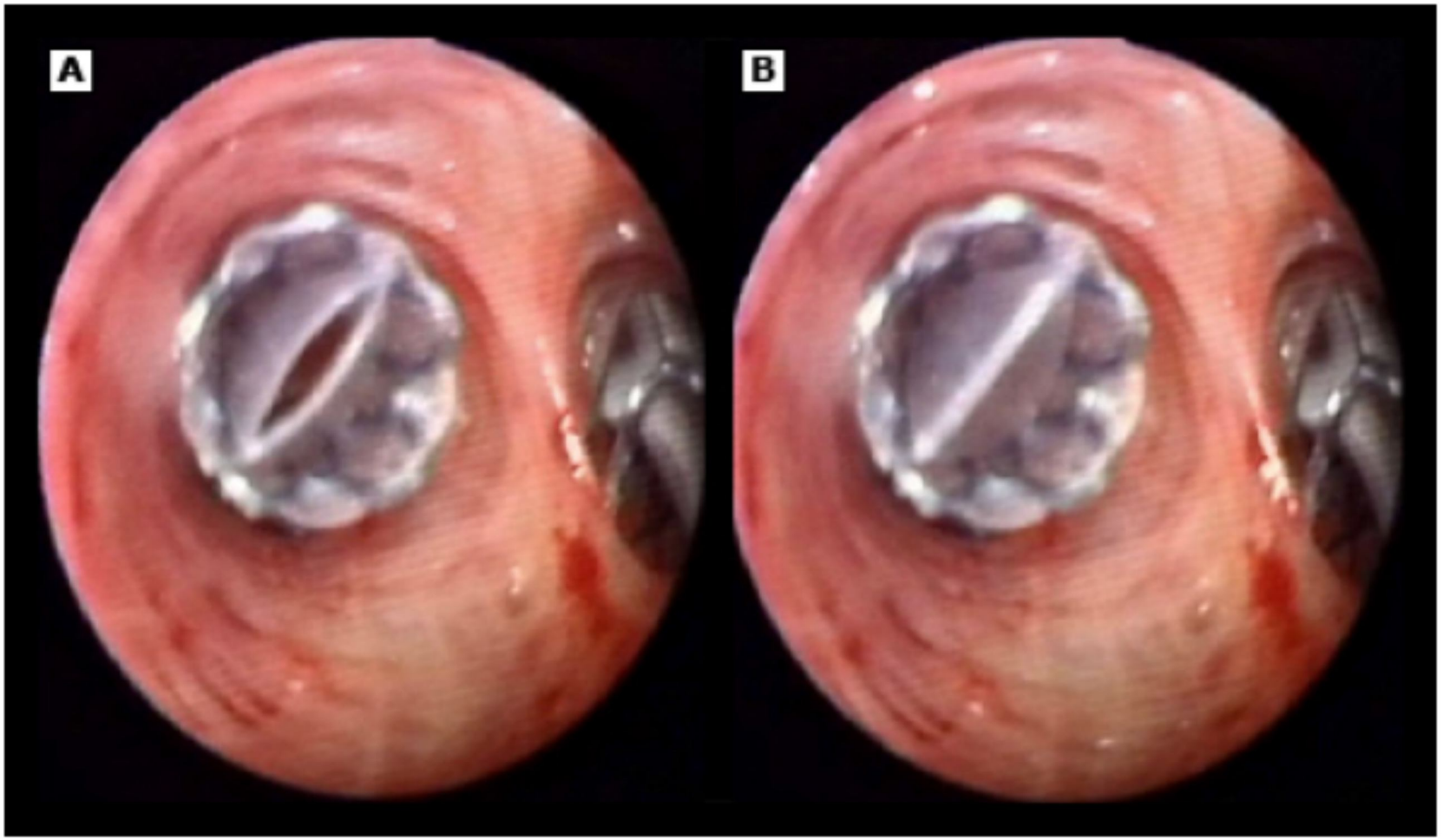
Lung Coils

Endobronchial Valves

Zephyr® Endobronchial Valve

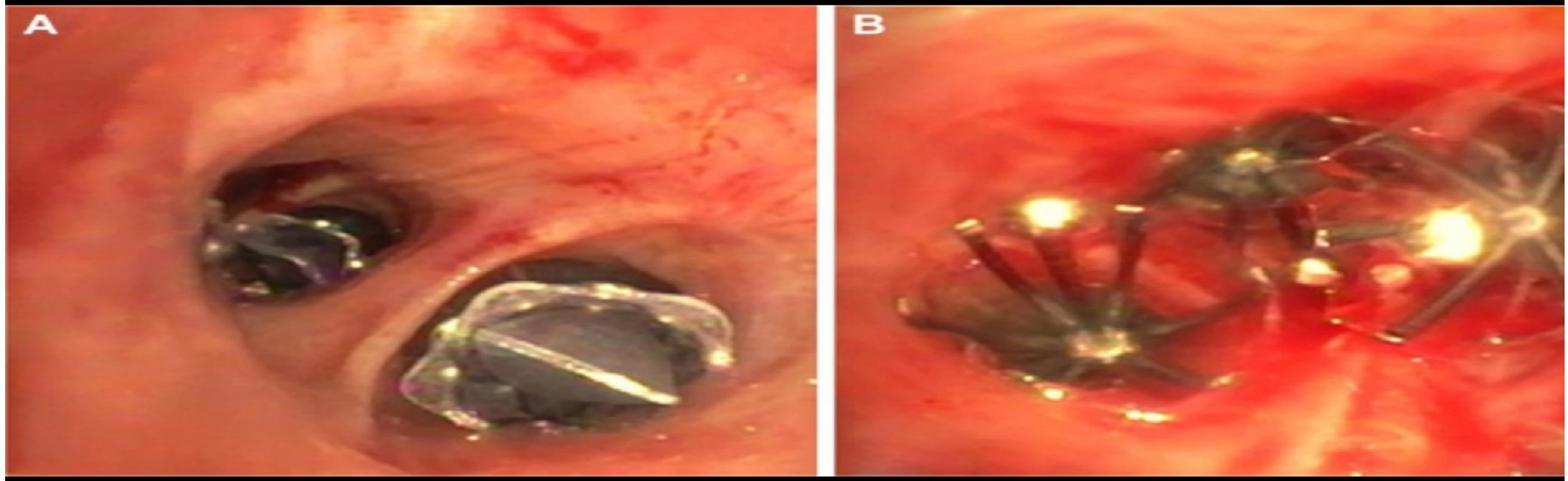
Spiration® Valve Syste

Zephyr® Endobronchial Valve, end view

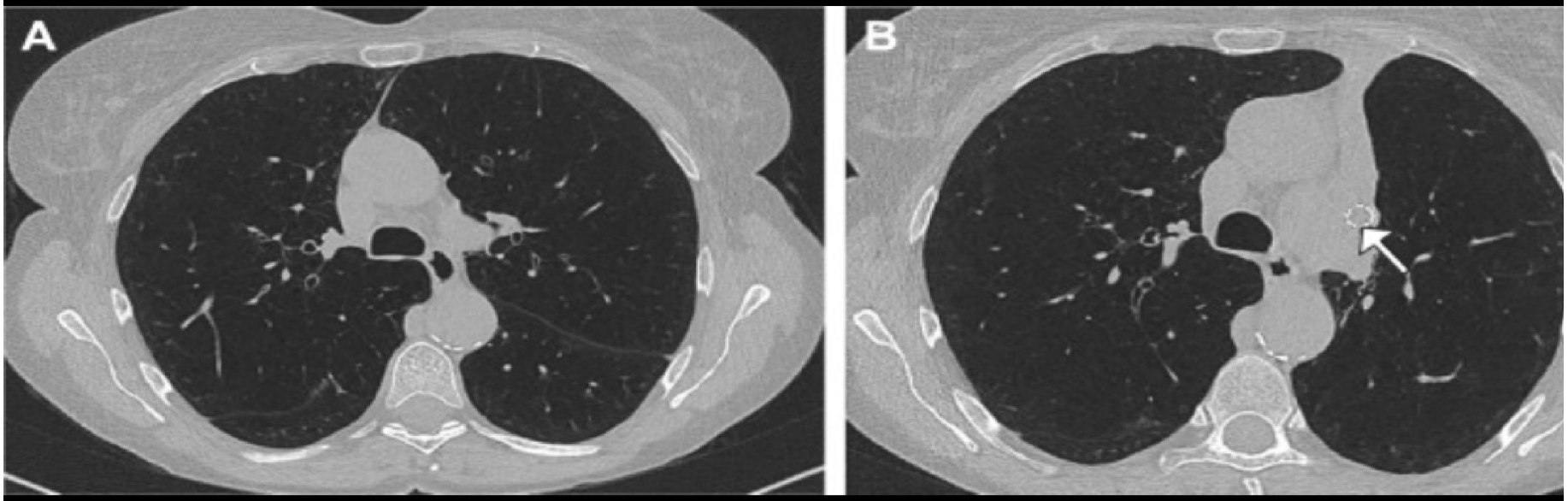


Views of the Zephyr® Endobronchial Valve vents showing an open valve during expiration (panel A) and a closed valve during

Endobronchial Valves



Endobronchial Valves



Lung Volume Reduction Methods Show Similar Results for Emphysema

Neil Osterweil

September 09, 2022

BARCELONA, Spain — For patients with emphysema who are suitable candidates for lung volume reduction surgery, there were no differences at 1 year in either lung function, dyspnea, or exercise capacity between

As noted before, there were no significant differences in outcomes at 1 year, with similar degrees of improvement between the surgical techniques for both the composite iBODE score (-1.10 for LVRS vs. -0.82 for BLVR, nonsignificant), and for the individual components of the score.

In addition, the treatments were associated with similar reductions in gas trapping, with residual volume percentage predicted -36.1 with LVRS, vs, -30.5 with BLVR (nonsignificant).

One patient in each group died during the 12 months of follow-up. The death of the patient in the BLVR group was deemed to be treatment related; the death of the patient in the LVRS group was related to a noninfective exacerbation of chronic obstructive

Patient selection for bronchoscopic lung volume reduction with endobronchial valves*

Inclusion criteria	
Medical history and physical examination	Clinical presentation consistent with emphysem Symptomatic despite optimal medical therapy (mMRC ≥2) Clinically stable on ≤20 mg prednisone (or equivalent)/day Nonsmoking for ≥4 months BMI <35 kg/m^2
Pulmonary function tests	FEV_1 ≥15% predicted but ≤45% predicted TLC ≥100% predicted RV ≥175% predicted 6MWD ≥100 m and <500 m
Imaging	Emphysema on HRCT
Anesthesia	Able to tolerate procedural sedation
Collateral ventilation	Lobe targeted for EBV placement must have littl to no collateral ventilation assessed by Chartis¶

Exclusion criteria
Prior lung transplant, LVRS, median sternotomy, lobectomy
Heart failure (LVEF <45%), unstable cardiac arrhythmia, myocardial infarction, stroke
Severe hypercapnia: $PaCO_2$ >60 mmHg (8 kPa)
Severe hypoxemia: PaO_2 <45 mmHg (6 kPa)
Active pulmonary infection
Allergy to nitinol, nickel, titanium, or silicone
Large bullae >30% either lung

Potential indications and contraindications for LVRS

Parameter	Indications	Contraindications
Clinical	Age <75 years	Age ≥75 years
	Ex-smoker (>6 months)	Current smoking
	Clinical picture consistent with emphysema	Surgical constraints (eg, previous thoracic procedure, pleurodesis, chest wall deformity)
	Dyspnea despite maximal medical therapy and pulmonary rehabilitation	Pulmonary hypertension (PA systolic >45 mmHg, PA mean >35 mmHg)
Comorbid illness*		Clinically significant bronchiectasis
		Clinically significant coronary heart disease
		Heart failure with an ejection fraction <45 percent
		Uncontrolled hypertension
		Obesity¶
Physiology	FEV1 after bronchodilator <45 percent predicted	FEV1 ≤20 percent predicted with either DLCO ≤20 percent predicted or homogeneous emphysema
	Hyperinflation (TLC >100 percent predicted, RV >150 percent)	PaO2 ≤45 mmHg on room air
	Post rehabilitation 6-minute walk distance >140 meters	PaCO2 ≥60 mmHg
	Low post rehabilitation maximal achieved cycle ergometry watts$^{\Delta}$	
Imaging	Chest radiograph - hyperinflation	
	HRCT confirming severe emphysema, ideally with upper lobe predominance	Homogeneous emphysema with FEV1 ≤20 percent predicted
		Significant pleural or interstitial changes on HRCT
		Non-upper lobe predominant emphysema

Edit_vapor_Overview of InterVapor Bronchoscopic Thermal Vapor Ablation (BTVA).mp4

Edit _Coil_Neue Therapie bei schwerem Lungenemphysem.mp4

Endobronchial Valve Animation - SPIRATION.mp4


heart syria
Thank You