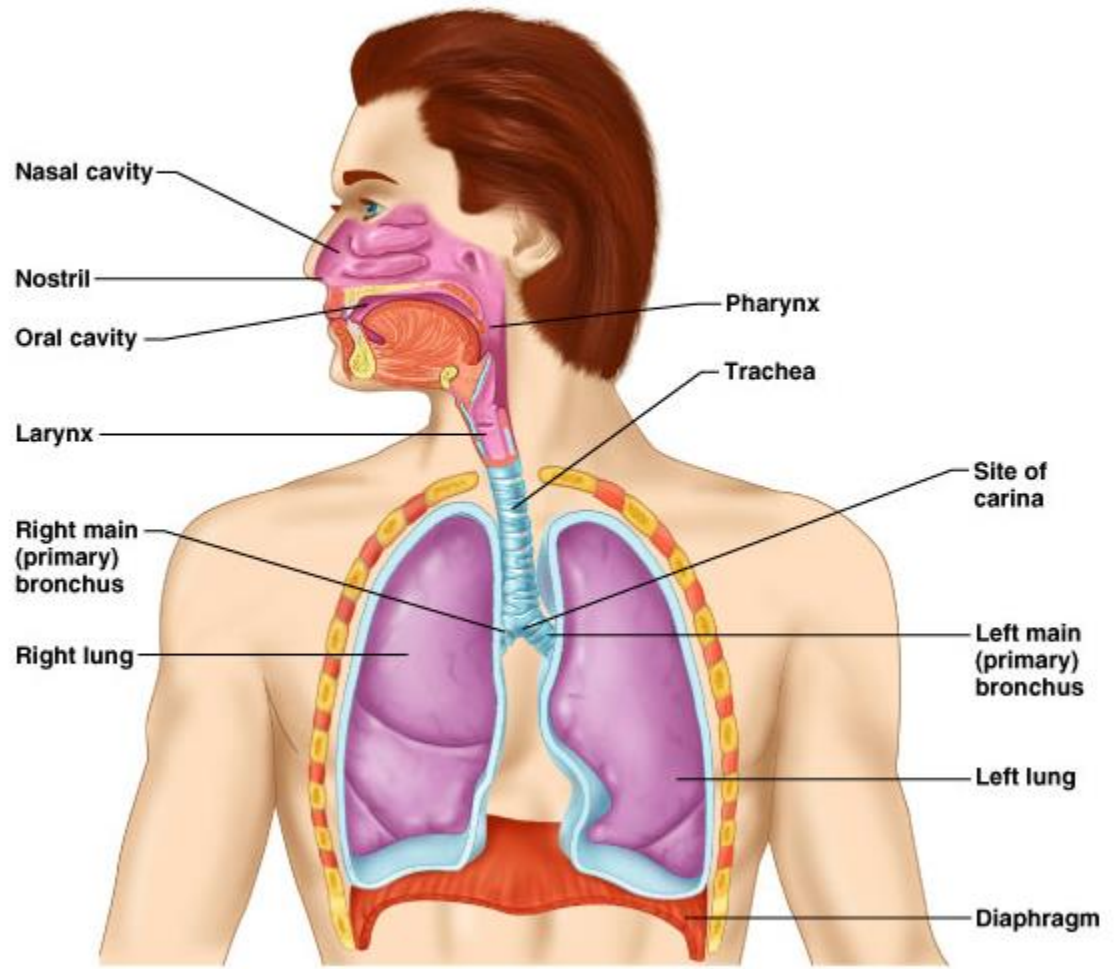


The Respiratory System



Common respiratory system

Symptoms:

Cough

Sputum

Hemoptysis

Dyspnea

Chest pain (chest tightness)

Wheezing

Cough

A cough is a defensive reflex of the body that functions to keep the airways clear of irritating or obstructing substances so that breathing and the intake of oxygen is effective. A cough is a symptom of a wide variety of mild to serious diseases,

2 Types of cough = dry & productive

Productive cough = cough with Sputum

1-amount

2-type =

A-serous(clear, watery ,frothy,) in acute pulmonary edema ,bronchioalveolar cell ca.

B-mucoid(cleare, grey, white,) ch. bronchitis, COPD, asthma .

C-mucopurulent or purulent(yellow, green, brown). bacterial infection

D-rusty(golden yellow) pneumococcal pn.....
(bacterial infection, lung abscess..)

E-bloody(haemoptysis),,

3-Viscosity.

4-taste

5-ouder

Causes of cough

1-pharynx .postnasal drip

2-larynx .laryngitis ,tumour, whooping cough

3-trachea .tracheitis,tumour ,f. body

4-bronchi & lung parenchyma. bronchitis,
gastro esophageal reflux disease (GERD) and
chronic obstructive pulmonary disease (COPD)
asthma ,congestive heart failure or
pneumonia. Malignancy

5-truma ,drugs...

Diagnosis & Treatment

1-history; full history about onset, duration, type of cough, associated symptom, family history.....

2-examination (general, pulmonary and extra pulmonary examination...)

3-investigation; C.X.R, CBP & ESR, sputum

-others (pul.function test, ECG, ECHO, CT of chest, MRI

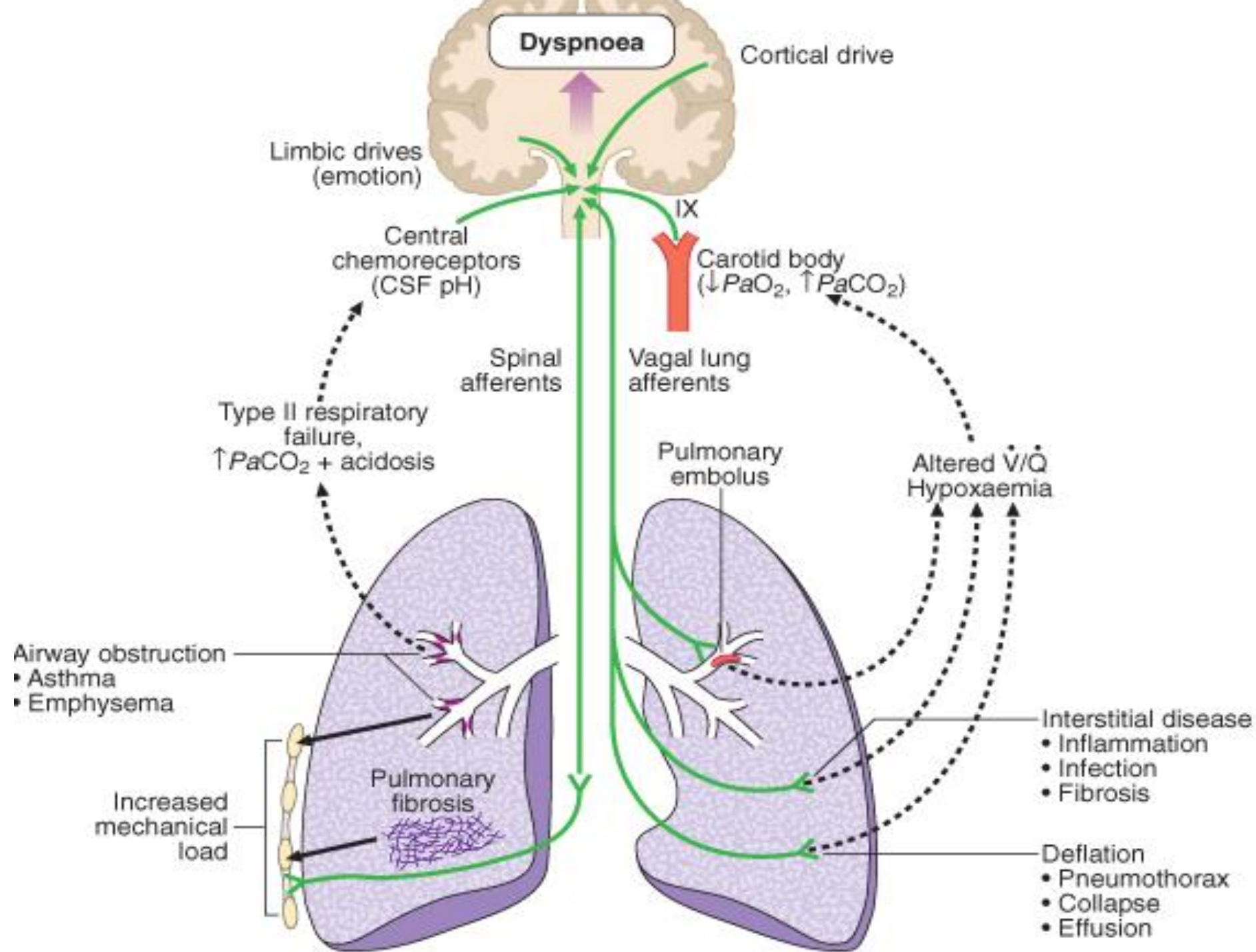
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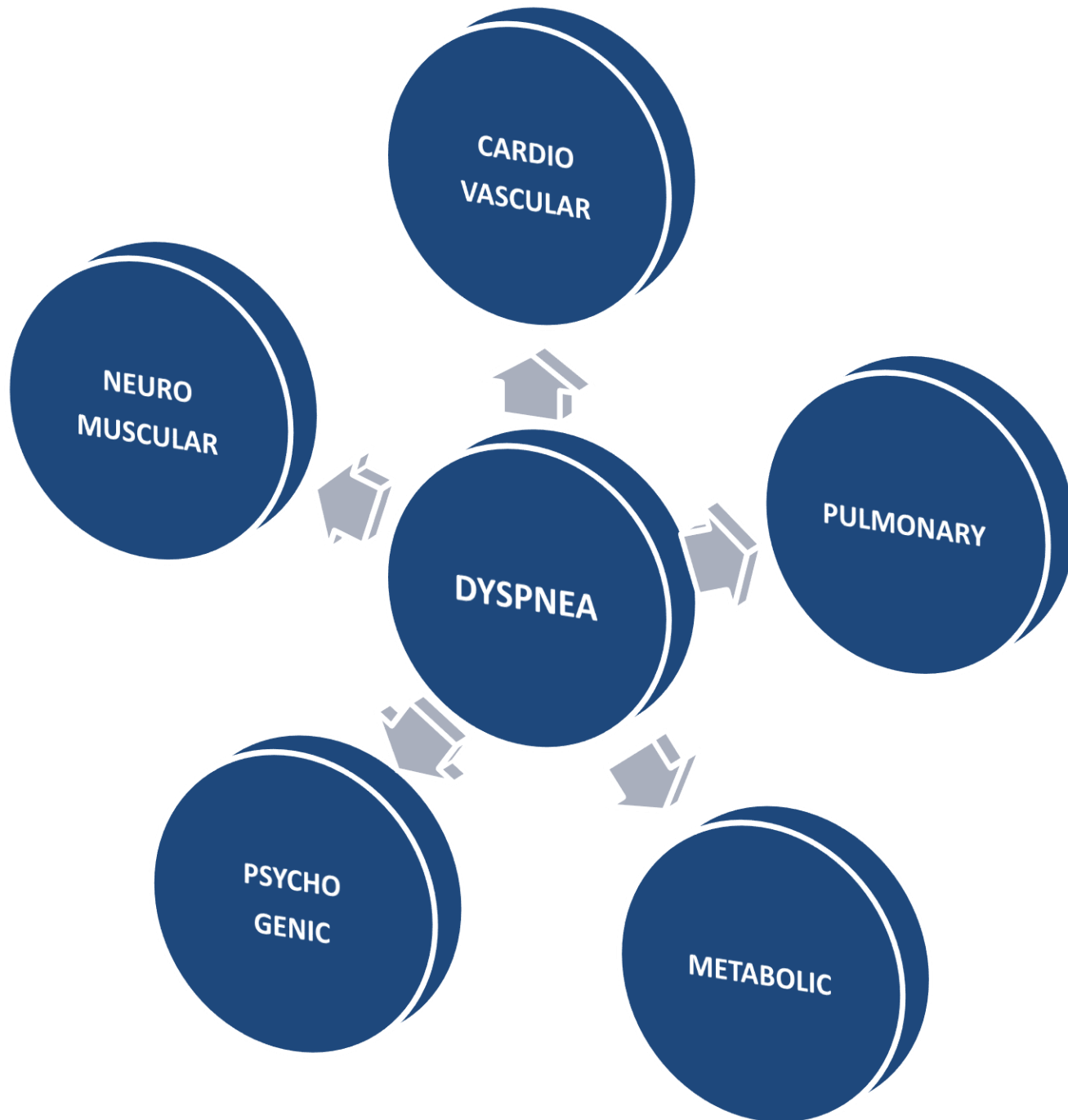
Treatment; primary causes and cough suppression

Dyspnea

- Dyspnea is defined as difficulty in breathing.
- The respiratory rate may be increased or decreased, although the respiratory effort is usually increased with the use of accessory muscles. The patient may show signs of progressive fatigue and impaired gas exchange.

- **Pathophysiology**
- **by stimulating intrapulmonary sensory nerves** (e.g. pneumothorax, interstitial inflammation and pulmonary embolus),
- **by increasing the mechanical load on the respiratory muscles** (e.g. airflow obstruction or pulmonary fibrosis)
- **stimulating peripheral chemoreceptors** **any** causes of hypoxia, hypercapnia or acidosis.
- In cardiac failure, pulmonary congestion reduces lung compliance and can obstruct the small airways. In addition, reduced cardiac output limits oxygen supply to the skeletal muscles during exercise causing early lactic acidemia, further stimulating breathing via the **central chemoreceptors**





- **Common causes**
- **Respiratory**
 - asthma
 - COPD
 - Pneumothorax
 - Pneumonia
 - Pulmonary embolus
 - Acute respiratory distress syndrome
 - Inhaled foreign body (especially in the child)
 - Lobar collapse
 - Laryngeal oedema (e.g. anaphylaxis)*
 - COPD
 - Bronchial carcinoma
 - Interstitial lung disease (sarcoidosis, fibrosing alveolitis, extrinsic allergic alveolitis, pneumoconiosis)
 - Chronic pulmonary thromboembolism
 - Lymphatic carcinomatosis (may cause intolerable dyspnoea)
 - Large pleural effusion(s)
- Respiratory failure
- **Circulatory** Heart failure, pulmonary embolus, severe anemia, ischemic heart disease
- **Metabolic** Acidosis
- **Central Stimulants** (e.g., aspirin),
- **Anaphylactic** Upper airway obstruction, bronchospasm
- **Psychiatric** Anxiety
- **Others** Metabolic acidosis (e.g. diabetic ketoacidosis, lactic acidosis, uraemia, overdose of salicylates, ethylene glycol poisoning) Obesity

• **SOME FACTORS POINTING TO PSYCHOGENIC HYPERVENTILATION**

- 'Inability to take a deep breath'
- Frequent sighing/erratic ventilation at rest
- Short breath-holding time in the absence of severe respiratory disease
- Difficulty in performing/inconsistent spirometry manoeuvres
- Induction of symptoms during submaximal hyperventilation
- Resting end-tidal CO₂ > 4.5%
- Associated digital paraesthesiae

- Approach to patients with dyspnae
- History.....
- Examination.....
- Investigation.....

- **Principles of management**
- Provide O₂ therapy to maintain SaO₂ (ideally >90%-95%).
- Correct abnormality when possible.
- Support therapy until recovery.
 - Mechanical (e.g., positive-pressure ventilation, CPAP)
 - Pharmacological treatment (e.g., bronchodilators, vasodilators)
- Relieve anxiety.
- A psychiatric cause of dyspnea is only made after exclusion of other treatable causes.
- Dual coexisting pathologies should be considered (e.g., lower respiratory tract infection and hypovolemia).

- **HAEMOPTYSIS**

- Coughing up blood, irrespective of the amount, is an alarming symptom and nearly always brings the patient to the doctor. A clear history should be taken to establish that it is true haemoptysis and not haematemesis, gum bleeding or nosebleed. Haemoptysis must always be assumed to have a serious cause until appropriate investigations have excluded these causes

- **A history** of repeated small haemoptyses, or blood-streaking of sputum, is highly suggestive of bronchial carcinoma.
- Fever, night sweats and weight loss suggest tuberculosis.
- Pneumococcal pneumonia is often the cause of 'rusty'-coloured sputum but can cause frank haemoptysis, as can all the pneumonic infections which lead to suppuration or abscess formation .
- Bronchiectasis . and intracavitary mycetoma , can cause catastrophic bronchial haemorrhage and in these patients there may be a history of previous tuberculosis or pneumonia in early life. Pulmonary thromboembolism is a common cause of haemoptysis and should always be considered.

- Physical examination
- may reveal additional clues, e.g. finger clubbing in bronchial carcinoma or bronchiectasis; other signs of malignancy such as cachexia, hepatomegaly, lymphadenopathy etc.; fever or signs of consolidation and pleurisy in pneumonia or pulmonary infarction; leg signs of deep venous thrombosis in a minority of patients with pulmonary infarction; and signs of systemic diseases including rash, purpura, haematuria, splinter haemorrhages, lymphadenopathy or splenomegaly in the uncommon systemic diseases which may be associated with haemoptysis

- Chest X-ray, which may give clear evidence of a localised lesion including pulmonary infarction, a tumour (malignant or benign), pneumonia or tuberculosis.
- Full blood count and other haematological tests including clotting screen.
- Bronchoscopy after acute bleeding has settled, which may reveal a central bronchial carcinoma (not visible on the chest X-ray) and permit tissue diagnosis.
- Ventilation-perfusion (V/Q) lung scan, which is helpful in establishing a diagnosis of suspected pulmonary thromboembolic disease. CT pulmonary angiography may be necessary in patients with pre-existing lung disease where interpretation of the V/Q scan can be difficult.
- CT, which is particularly useful in investigating peripheral lesions seen on the chest X-ray which are not accessible to bronchoscopy and facilitates accurate percutaneous needle biopsy where indicated

• **CAUSES OF HAEMOPTYSIS**

- **Bronchial disease** Carcinoma* Bronchiectasis* Acute bronchitis* Bronchial adenoma *Foreign body
- **Parenchymal disease** Tuberculosis* Suppurative pneumonia *Lung abscess
- Parasites (e.g. hydatid disease, flukes) *Trauma *Actinomycosis *Mycetoma
- **Lung vascular disease**
- Pulmonary infarction*
- Polyarteritis nodosa
- Goodpasture's syndrome ([p. 502](#))
- Idiopathic pulmonary haemosiderosis
- **Cardiovascular disease**
- Acute left ventricular failure*
- Mitral stenosis
- Aortic aneurysm
- **Blood disorders**
- Leukaemia
- Haemophilia
- Anticoagulants