BPOC

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Definitii

- BPOC:
  - Boala obstructiva pulmonara, progresiva si ireversibila
  - Modificari multiple pulmonare, incluzand parenchimul si caile aeriene mici
  - Efecte extra-pulmonare si comorbiditati importante, care influenteaza severitatea bolii
  - Declinul pe termen lung al functiei pulmonare

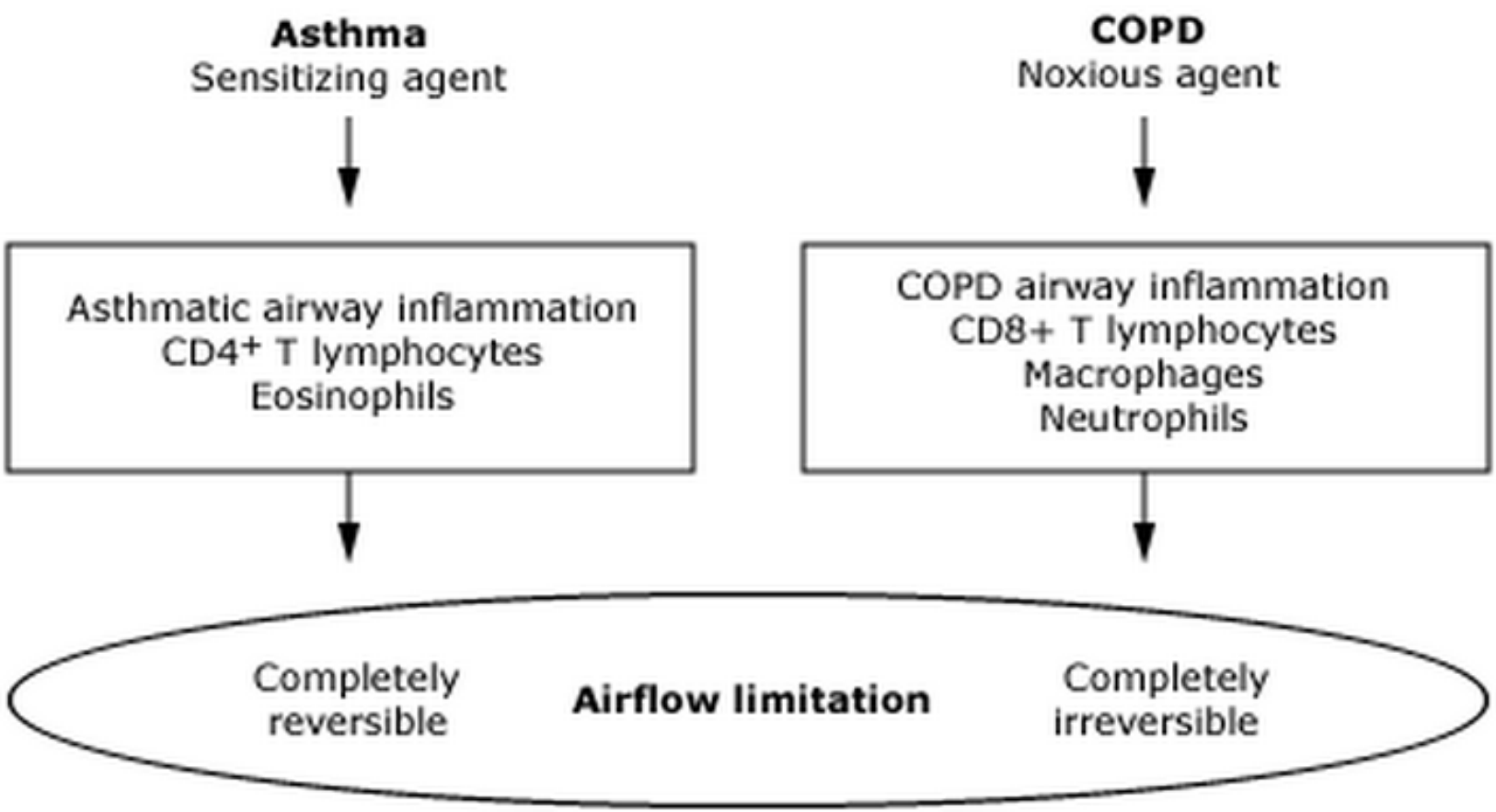
Definitii

- Bronsita cronica:
  - Tuse & sputa pentru ≥ 3 luni/an, cel putin 2 ani consecutivi
- Emfizemul:
  - Termen morfologic ce descrie distrugerea suprafetelor la nivelul carora au loc schimburile de gaze (alveole)

Definitii

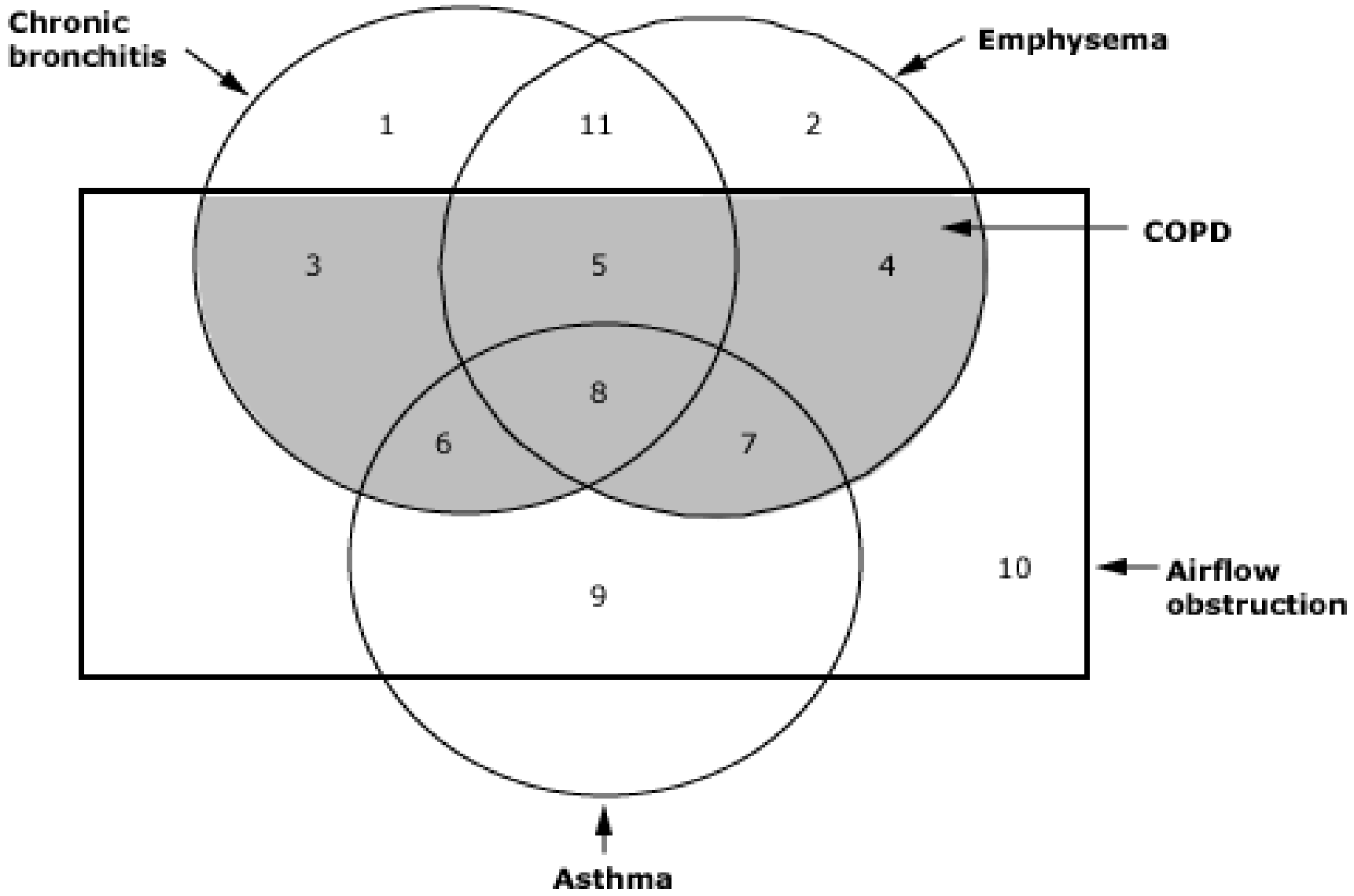
- Exacerbarea BPOC:
  - Aparitia acuta, in evolutia naturala a bolii, a unui episod caracterizat prin accentuarea dispneei bazale, a tusei si a expectoratiei

Asthma and COPD



Reproduced from the Global Initiative for Chronic Obstructive Pulmonary Disease, based on an April 1998 meeting of the National Heart, Lung, and Blood Institute and the World Health Organization.

Chronic obstructive pulmonary disease

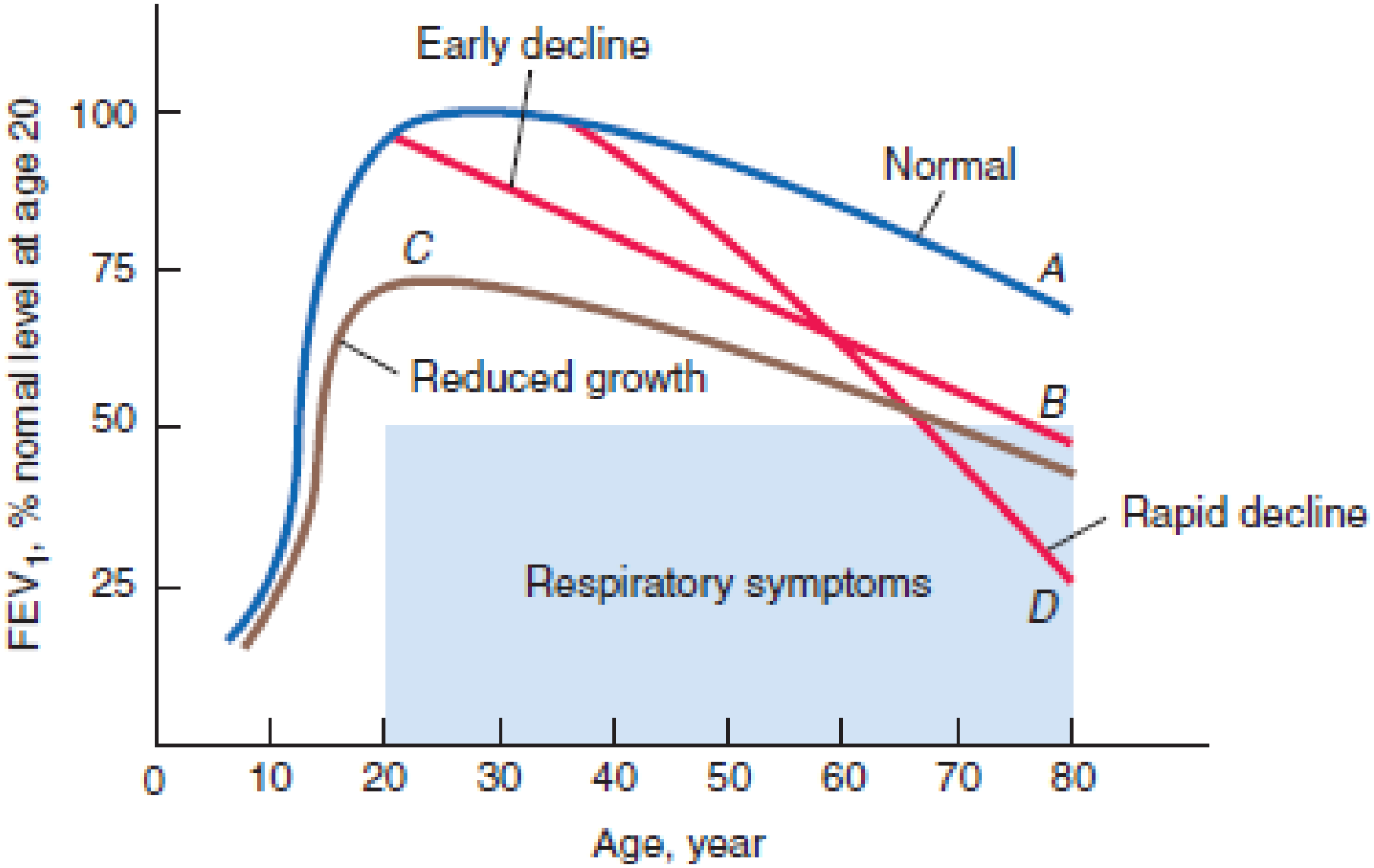


Incidenta/Prevalenta

- A 4-a cauza de mortalitate in lume
- Prevalenta 4-10% in lume
- Fumatori>15 ani: 47% la spirometrie

Cauze / FR

- Fumatul (x1,5)
- Hiperresponsivitate cai aeriene
- Inhalarea de fum de tigara, prafuri/chimicale, poluanti
- Poluare, infectii repetate in copilarie, TBC pulmonara, astm (x10), lipsa dezvoltarii intrauterine, subnutritie, statut social scazut
- Deficit de alpha-1 antitripsina (homo/heteroz)
- Biomasa (fum, combustibil) (x2,5)
- Marijuana (x3)


Early decline
Normal
C
A
Reduced growth
B
Rapid decline
Respiratory symptoms
D
FEV1, % nomal level at age 20
100
75
50
25
0
10
20
30
40
50
60
70
80
Age, year

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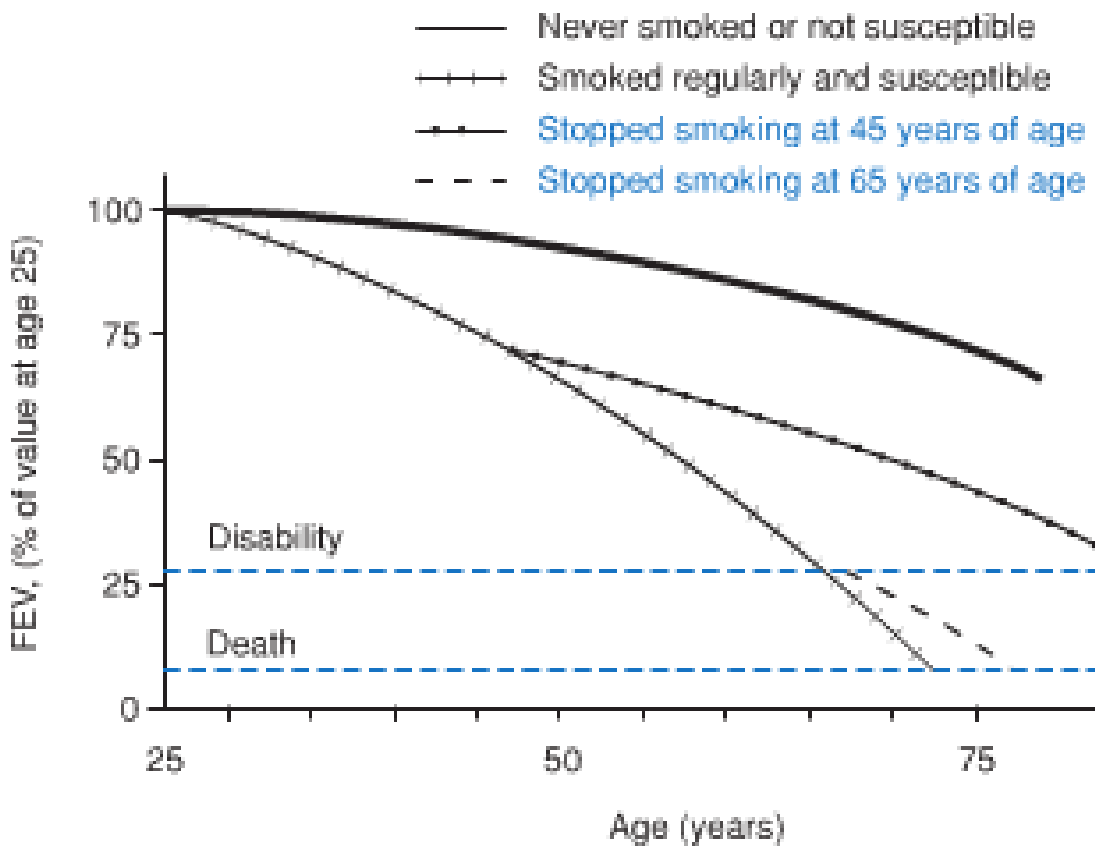
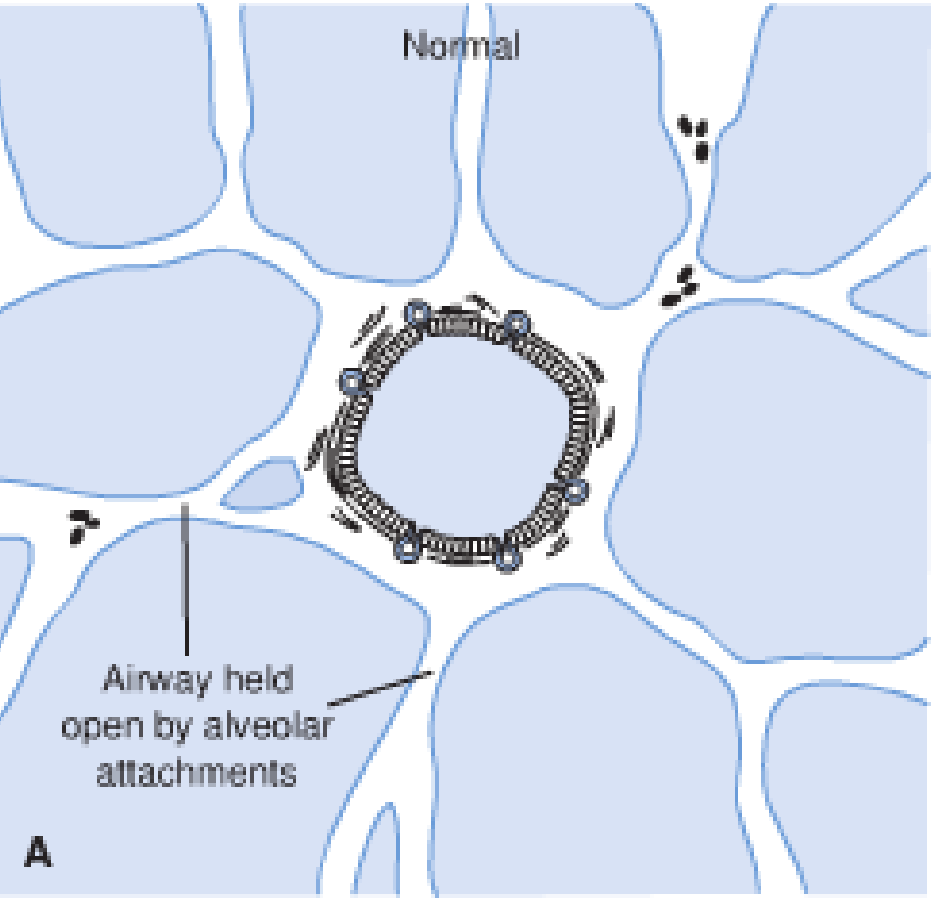


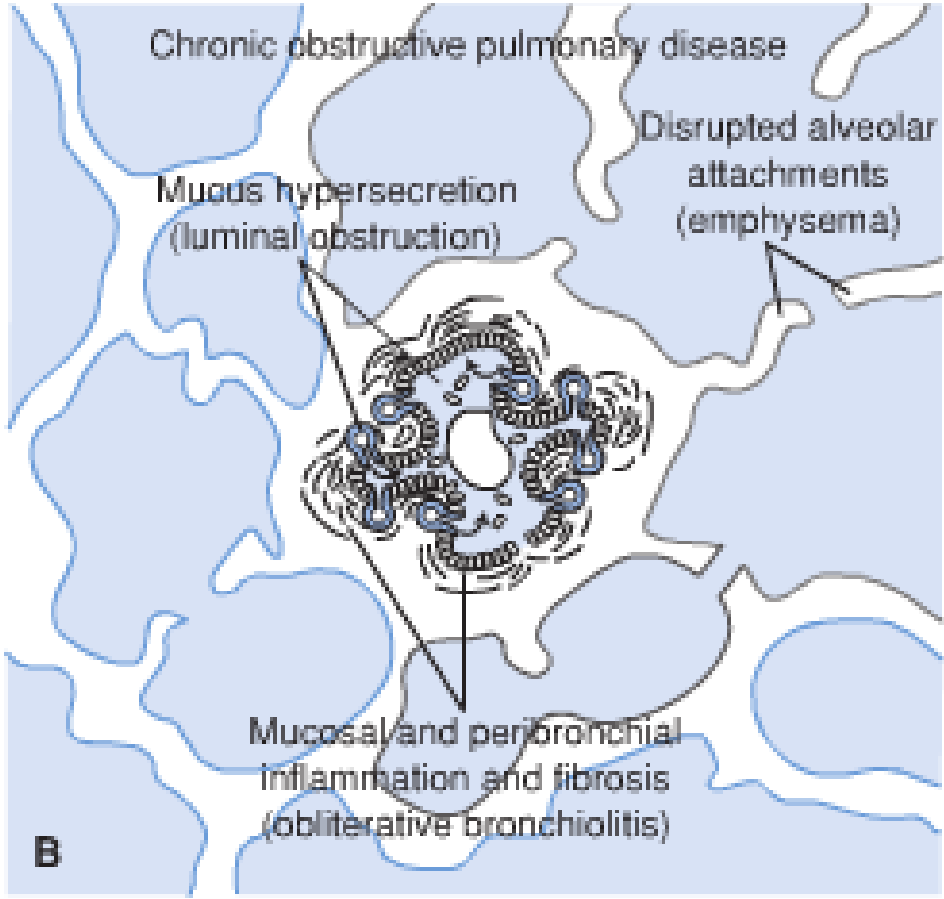
FIGURE 2–8 Age-related rate of decline in lung function in various patient groups. FEV_1, forced expiratory volume in 1 second. (Modified with permission from Snider GL, Saling LJ, Renard SI. Chronic bronchitis and emphysema. In Murray JF, Nadel JA, eds. Textbook of Respiratory Medicine. Philadelphia: WB Saunders, 1994:1342.)

Fiziopatologie

- Obstructie cai aeriene / Hiperinflatie
  - ↓ **VEMS**, CV, **IT**(=VEMS/CV),
  - ↑ vol rezidual, capacit pulm totala
- Respiratia
  - ↓ PaO2 (VEMS<50%)
  - ↑ PaCO2 (VEMS<25%)
  - ↑ TAP, CPC (VEMS<25%, PaO2<55 mmHg)

Morfopatologie





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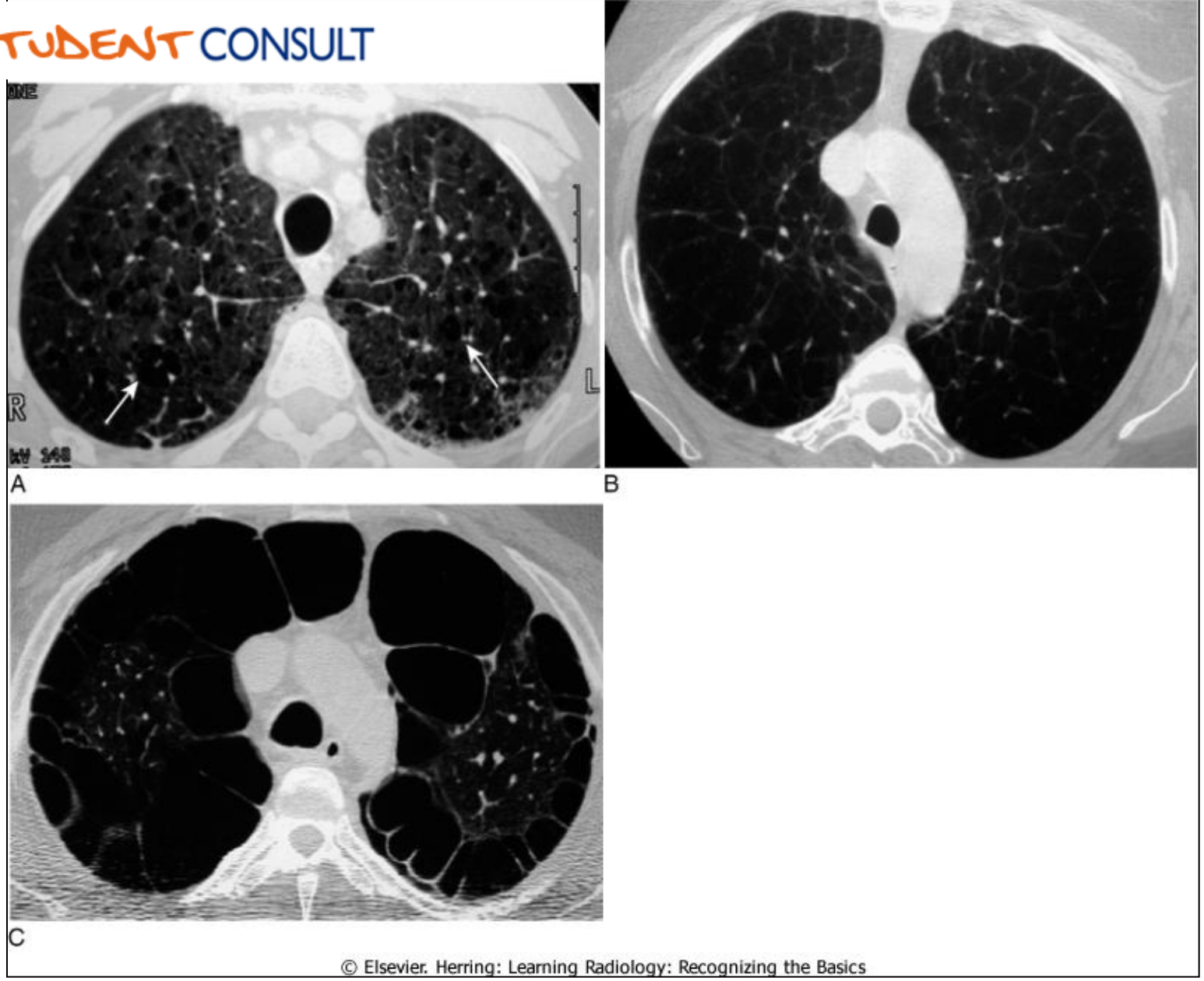


Figure 14-11 Types of emphysema. Centriacinar (centrilobular) emphysema (A) features focal destruction limited to the respiratory bronchioles and the central portions of the acinus (closed white arrows). It is associated with cigarette smoking and is most severe in the upper lobes. Panacinar (panlobular) emphysema (B) involves the entire alveolus distal to the terminal bronchiole, is most severe in the lower lung zones and generally develops in patients with homozygous α1-antitrypsin deficiency. Paraseptal emphysema (C) is the least common form; it involves distal airway structures, alveolar ducts, and sacs; tends to be subpleural; and may cause pneumothorax.

Manifestari clinice

- Simptomele principale
  - Tuse
  - Expectoratie
  - Dispnee

Emfizem / Br cr

	Emfizem	Br cr
Definitie	Dilatatie/distrugere spatii aeriene (definitie morfologica)	Tuse productiva>3 luni/an, ≥ 2 ani (definitie clinica)
Fiziopat	Afectat parenchimul Deficit paralel V/P Hipoxemie usoara	Afectate caile aeriene mici Defecte potrivire V/P Hipoxemie severa, hipercapnie, HTP, cord pulmonar
Manif clinice	Dispnee severa, constanta Tuse usoara	Dispnee intermitenta Tuse cu expectoratie
Ex fizic	*Pink puffer* Tahipnee, fara cianoza Murmur vezicular asurzit	*Blue bloater* Cianoza, obezitate, edeme Ronflante

Diagnostic

- Clinic: istoric, obstructie bronsica (expir prelungit, sibilante), torace emfizematos, murmur vezicular asurzit
- Fumator
- Utilizare musculatura accesorie
- Spirometrie
- RX, CT

Diagnostic

		Sn (%)	Sp (%)	LR+	LR-
h laring≤4 cm*		36	90	3,6	0,7
s Harzer		4-27	**97-99**	**7,4**	NS
No matit cord		15	**99**	**11,8**	NS
Scor sunete resp**	**≤ 9**	23-46	**96-97**	**10,2**	
	≥ 16	**3-10**	33-34	**0,1**	
Subcrepit inspir		25-77	**97-98**	**14,6**	
Sibilant		13-56	86-99	2,8	0,8
T expir fortat	**<3 s**	**8-10**	26-62	**0,2**	
	≥ 9 s	29-50	86-98	4,1	
2 din 3 (≥70 pach-an; spune ca are br cr/emfizem; ↓ murmur vez)		67	**97**	**25,7**	**0,3**

* Sup cartilaj tiroidian – marg sup stern / **0-4pt, 3 zone x2

Dg ≠

Dg ≠

- Boli pulmonare
  - Astmul bronsic
  - Bronsiectaziile
  - Boli interstitiale
- Insuficienta cardiaca
- Fibroza chistica
- Tuberculoza
- Pneumonia

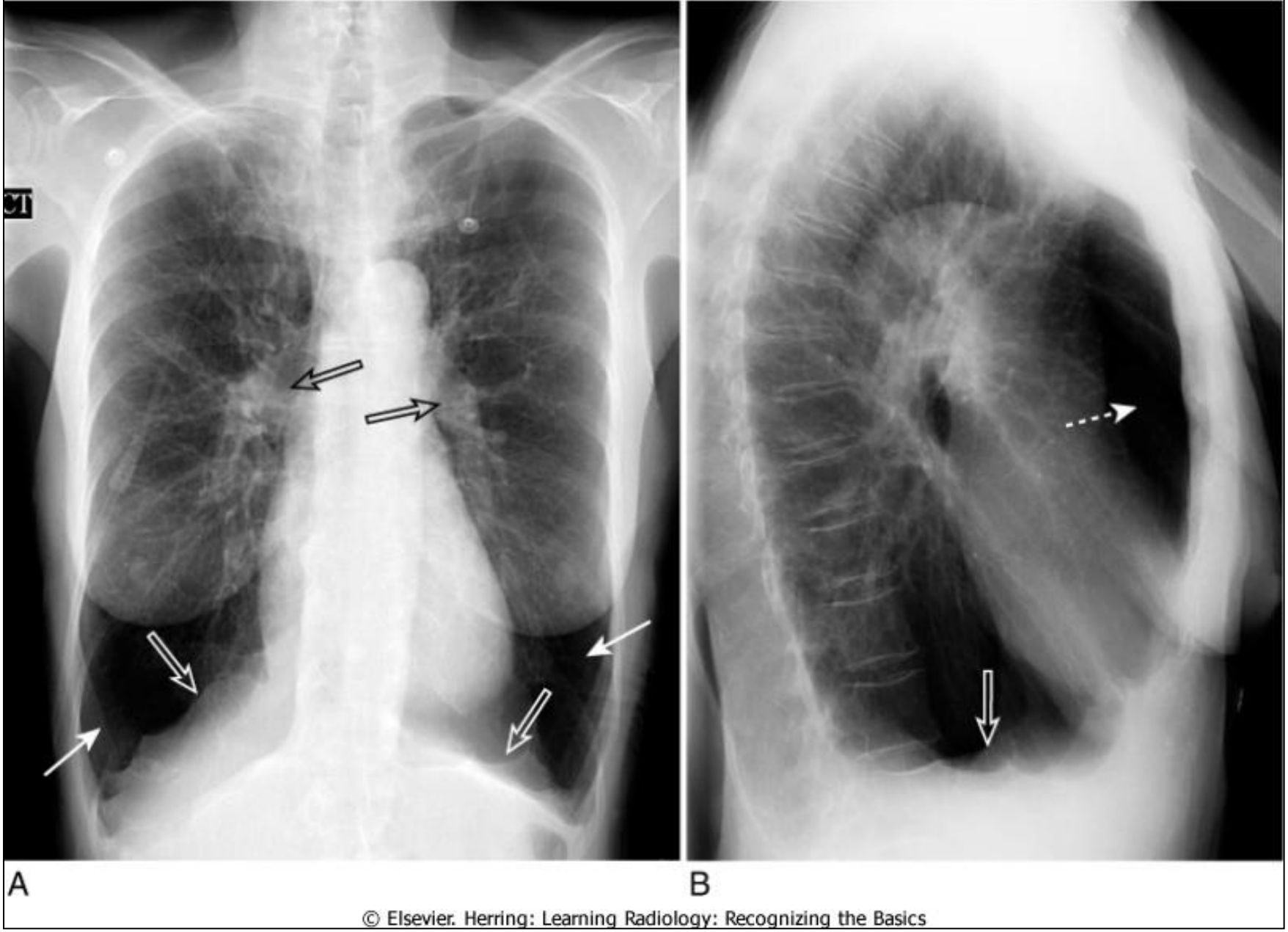
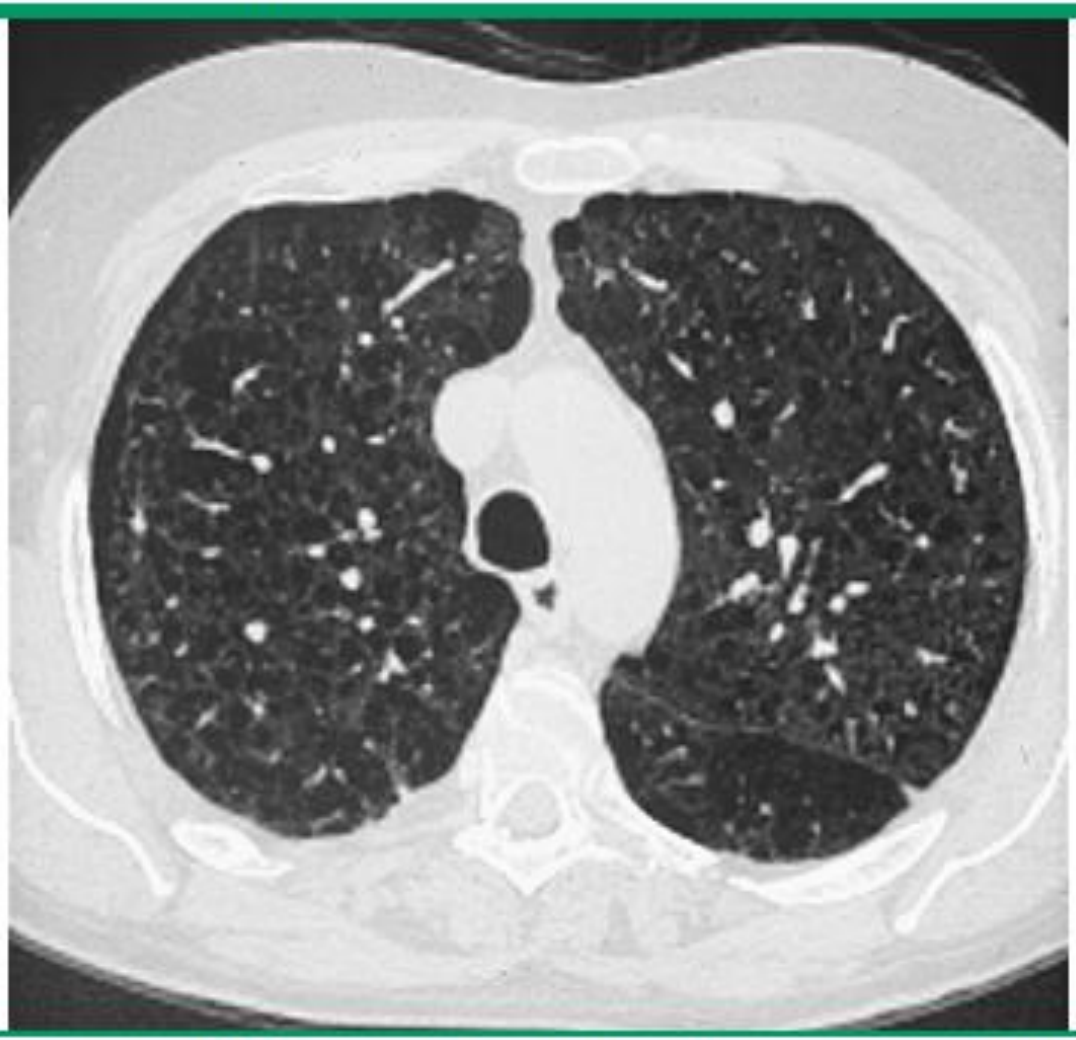


Figure 14-12 Emphysema. On conventional radiographs, the imaging findings of chronic obstructive pulmonary disease (COPD) are hyperinflation, including flattening of the diaphragm, especially on the lateral exposure (B) (open white arrows), increase in the retrosternal clear space (dotted white arrow), hyperlucency of the lungs with fewer than normal vascular markings (closed white arrows) (A), and prominence of the pulmonary arteries secondary to pulmonary arterial hypertension (open black arrows).

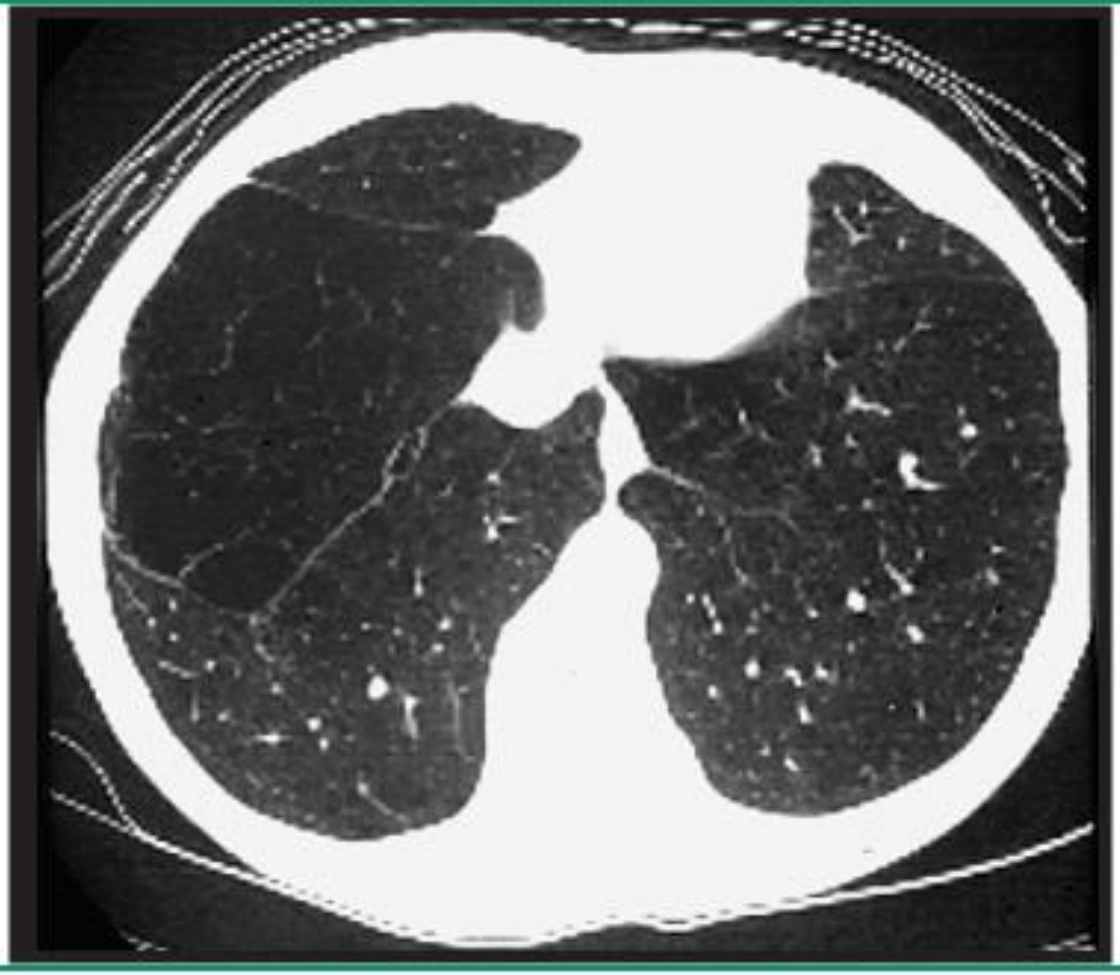
Centrilobular emphysema



HRCT shows multiple small lucencies permeating the upper lobes. The wall of the emphysematous spaces is imperceptible.

Courtesy of Paul Stark, MD.

Panlobular emphysema



HRCT shows a paucity of vascular structures in both lower lobes, most evident in the anterior-basal segment of the right lower lobe.

Courtesy of Paul Stark, MD.

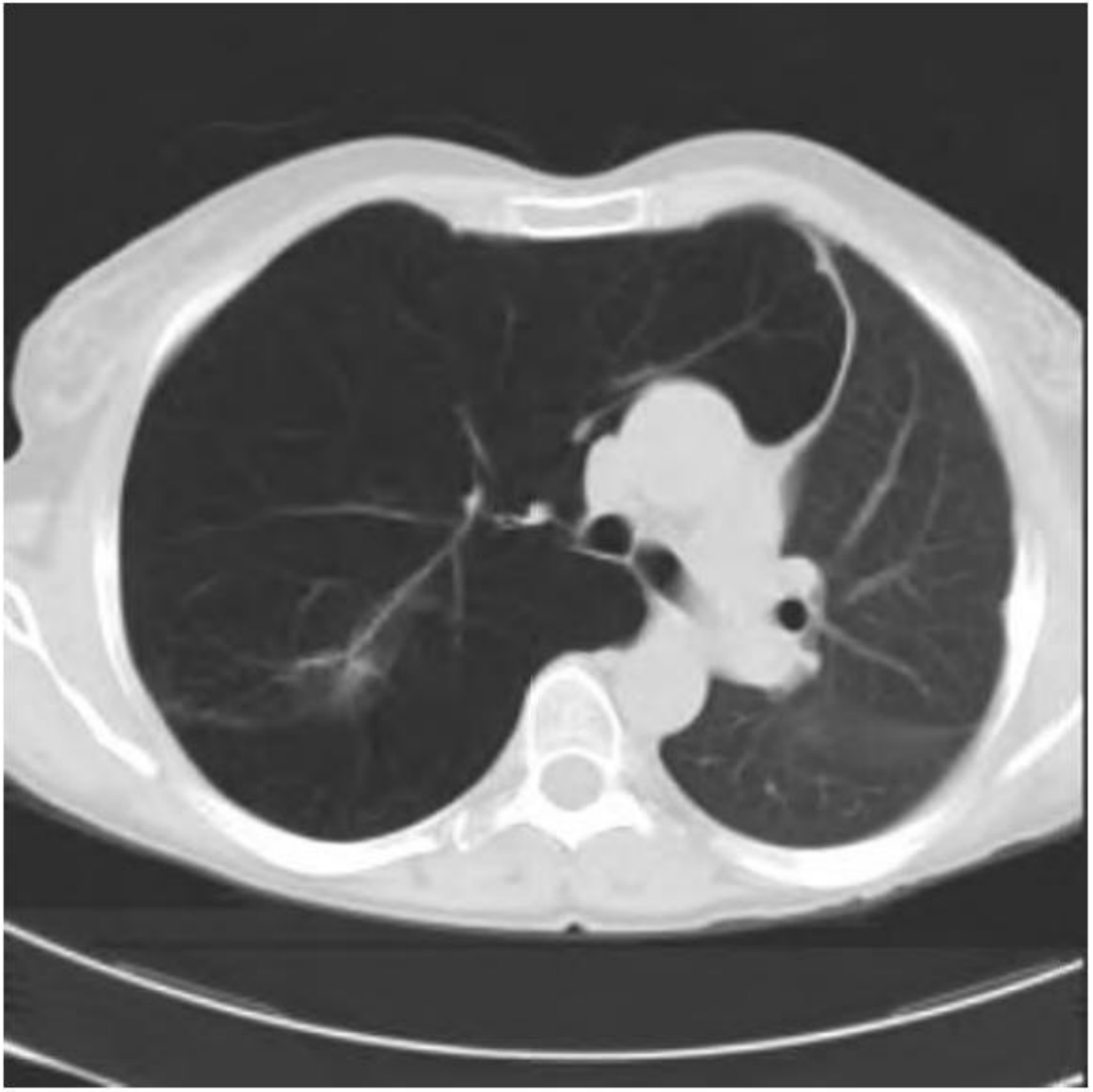


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FIGURE 254-4 Chest CT scan of a patient with COPD who underwent a left single-lung transplant. Note the reduced parenchymal

Stadializare

Stage	Spirometry Findings
Stadiul I - usor	**VEMS/CV < 0.7** **VEMS ≥ 80% prezis**
Stadiul II – moderat	**VEMS/CV < 0.7** **VEMS ≥ 50% si < 80% prezis**
Stadiul III – sever	**VEMS/CV < 0.7** **VEMS ≥ 30% si < 50% prezis**
Stadiul IV - foarte sever	**VEMS/CV < 0.7** **VEMS < 30% prezis sau** **VEMS < 50% prezis plus IRC**

Indice BODE

Variabila	Puncte indice BODE			
	0	1	2	3
VEMS (% prezis)	≥ 65	50-64	36-49	≤35
Dist in 6min (m)	≥350	250-349	150-249	≤149
Scala dispneei	0-1	2	3	4
IMC	>21	≤21		

7-10: † 80% la 2 ani

- **VEMS < 0,750 L: suprav 5 ani = 25%**
- **VEMS = 1L: suprav 5 ani = 50%**

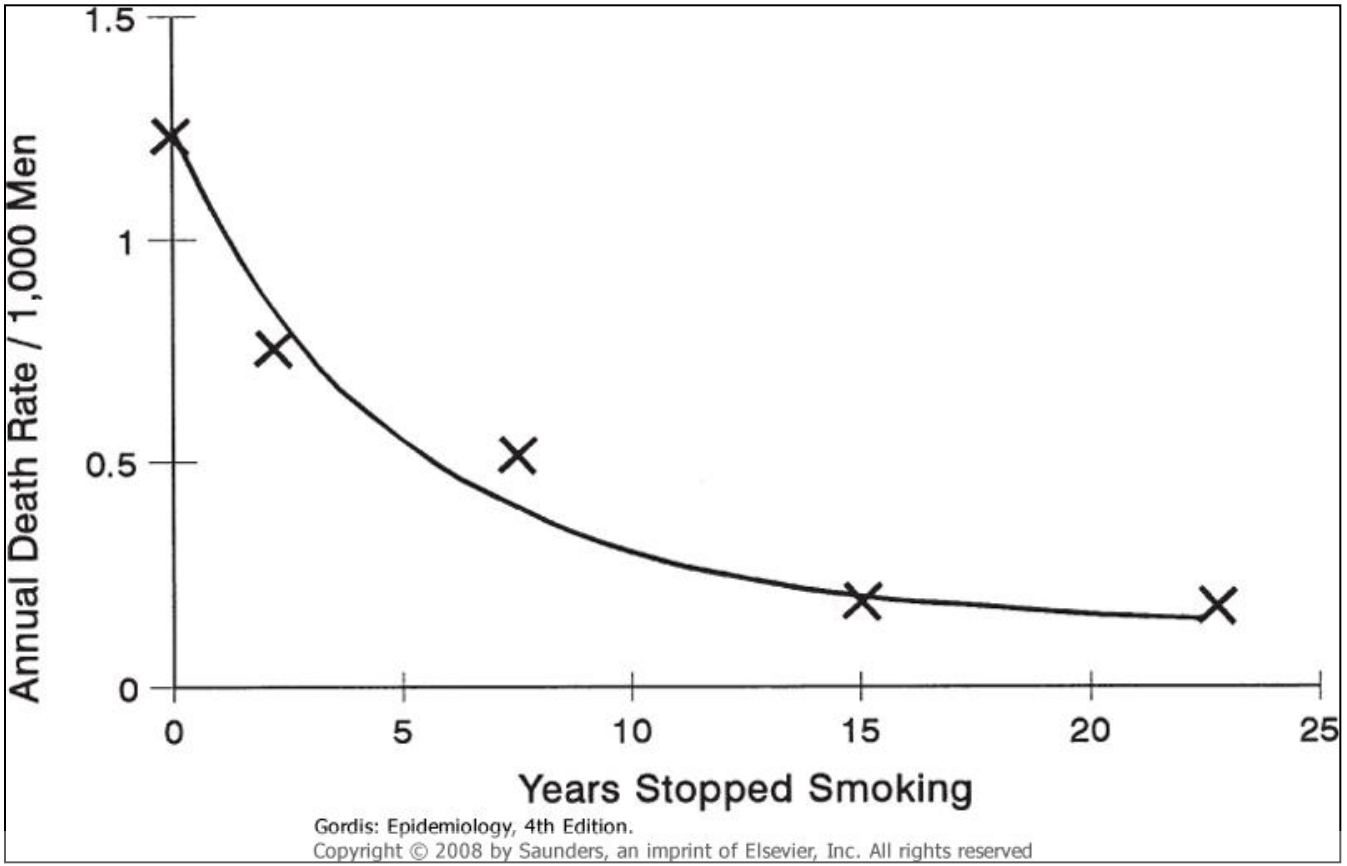
- **↓ VEMS cu 50-75 mL/an (x2 N)**

Tratamentul

- Obiective

Tratamentul de fond

Oprirea fumatului



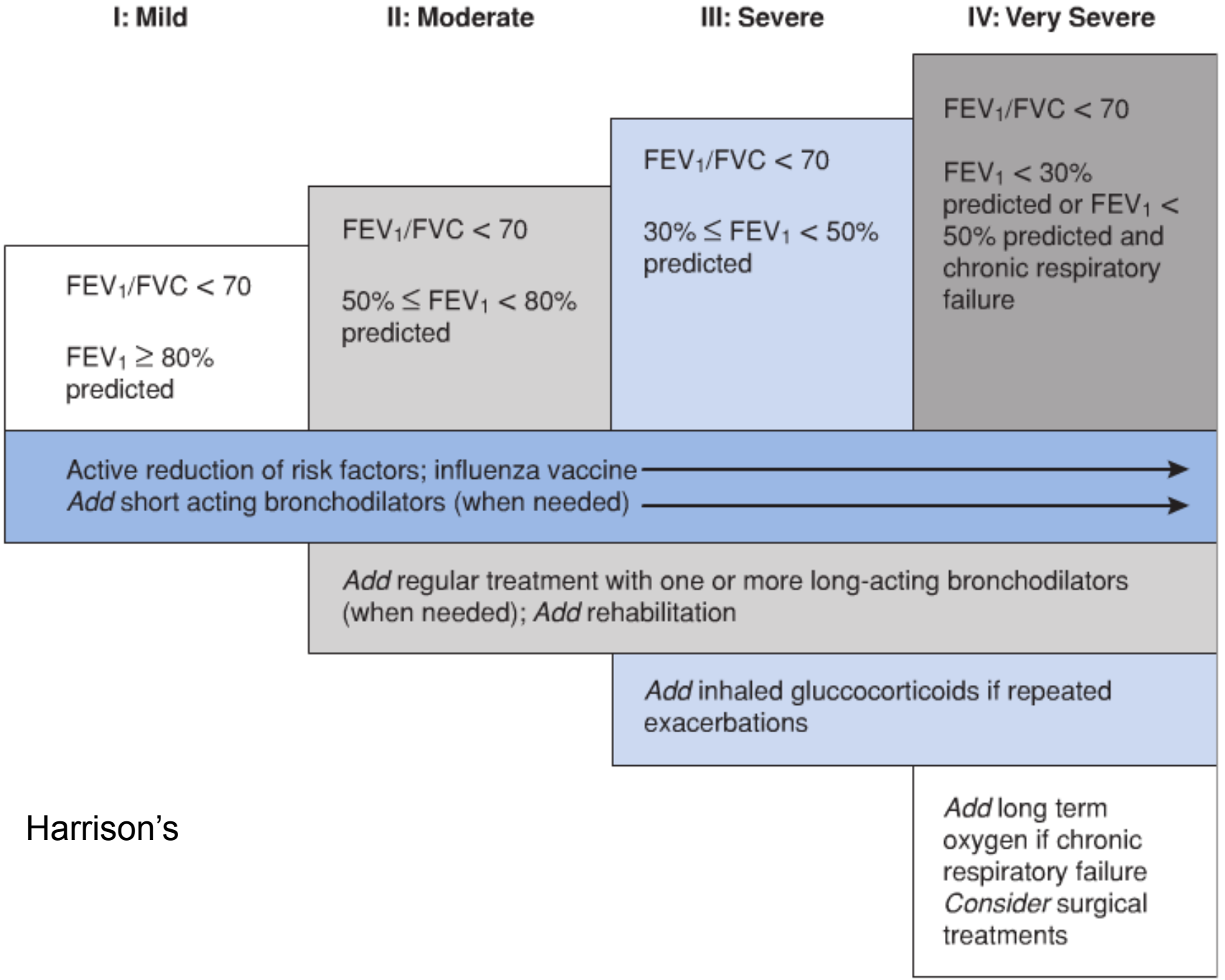
Gordis: Epidemiology, 4th Edition.

Tratamentul de fond

- Oprirea fumatului sta la baza trat
- Prima linie: bronhodilatator cu actiune lunga (beta-agonist sau anticolinergic).
- Stadiul III sau IV; exacerbari frecvente: combinatie LABA+cortizon (reduce exacerbarile).
- Exercitiul si reabilitarea imbunatatesc toleranta la exercitiu si reduc dispneea si oboseala.
- Oxigenoterapie (15-20 ore/zi) imbunatateste supravietuirea la pac cu obstructie severa ($PaO_2 < 55$ mm Hg in repaus).

Tratamentul de fond

- Oprirea fumatului sta la baza trat
- Vaccin antigripal (anual) si antipneumococic (la 5 ani).
- Bronhodilatatoare (beta2-adrenergice, anticolinergice)
- Cortizon inhalator (VEMS<50% + exacerb frecv)
- Aminofilina, teofilina: ↓ dispnee (putin)
- Mucolitice: ?



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GURE 2–10 Management of COPD as adapted from the global initiative for chronic obstructive lung disease (Gold), 2006.

Exacebarea BPOC

- 0,85 / pacient / an
- Modificare acută (accentuare) a dispneei bazale / tusei / expectoraţiei
  - Rx
  - Gaze sanguine

Exacebarea BPOC

- Prevenţie
  - Vaccinarea antigripală (frecvenţa, gravitatea)
  - LABA+CS (frecvenţa)
  - LAMA, acetilcisteina, eritromicina/azitromicina
  - Reabilitarea pulmonară

Exacebarea BPOC

- **Dg ≠**
  - **Pneumonie (Rx)**
  - **Insuf cardiacă (NT-proBNP)**
  - **TEP (d-dimeri, CT) (TA↓, lipsă ↑PaO2 cu O2)**
  - **Pneumotorax (Rx)**

Exacebarea BPOC

- **Spută purulentă: antibiotice**
  - ***Str pneumoniae, Haemophilus influenzae, Moraxella catharalis***
- **Infecţie:**
  - **PCR**
  - **procalcitonina**

Exacebarea BPOC

- Tratament
  - O2 (titrare până la PaO2>60 mmHg, SaO2>90%)
  - Corticosteroizi 30-40 mg/zi, 7-10 zile
  - B2 stimulente cu acţiune scurtă
  - Atb: amoxi+/-clavulanat, macrolide, quinolone, cefalosporine II-III
  - Acidoză+hipoxie: NIPPV (ventilaţie neinvazivă)→ ventilaţie invazivă