Stabil ve Alevlenmeye Yatkın KOAH'nın Tanımlanması, İzlenmesi ve Yönetimi GOLD 2026 Önerileri

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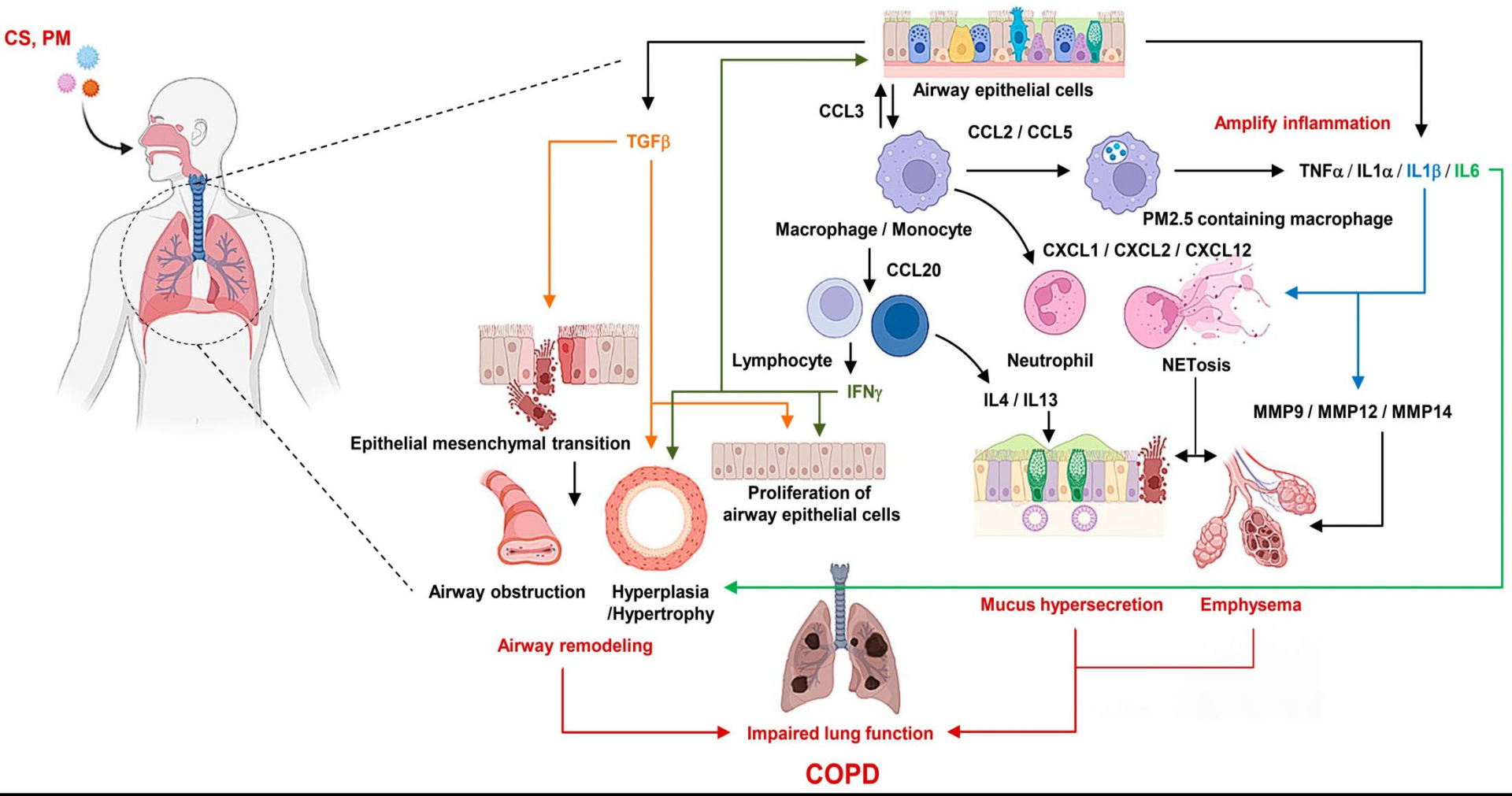
13.06.2026



KOAH

Kronik inflamasyon ve yapısal remodeling ile progresif hava akımı kısıtlanmasına yol açan, stabil dönemler ve alevlenmelerle seyreden sistemik , heterojen bir hastalıktır.

MacNee W. Proc Am Thorac Soc. 2005;2:258–266.

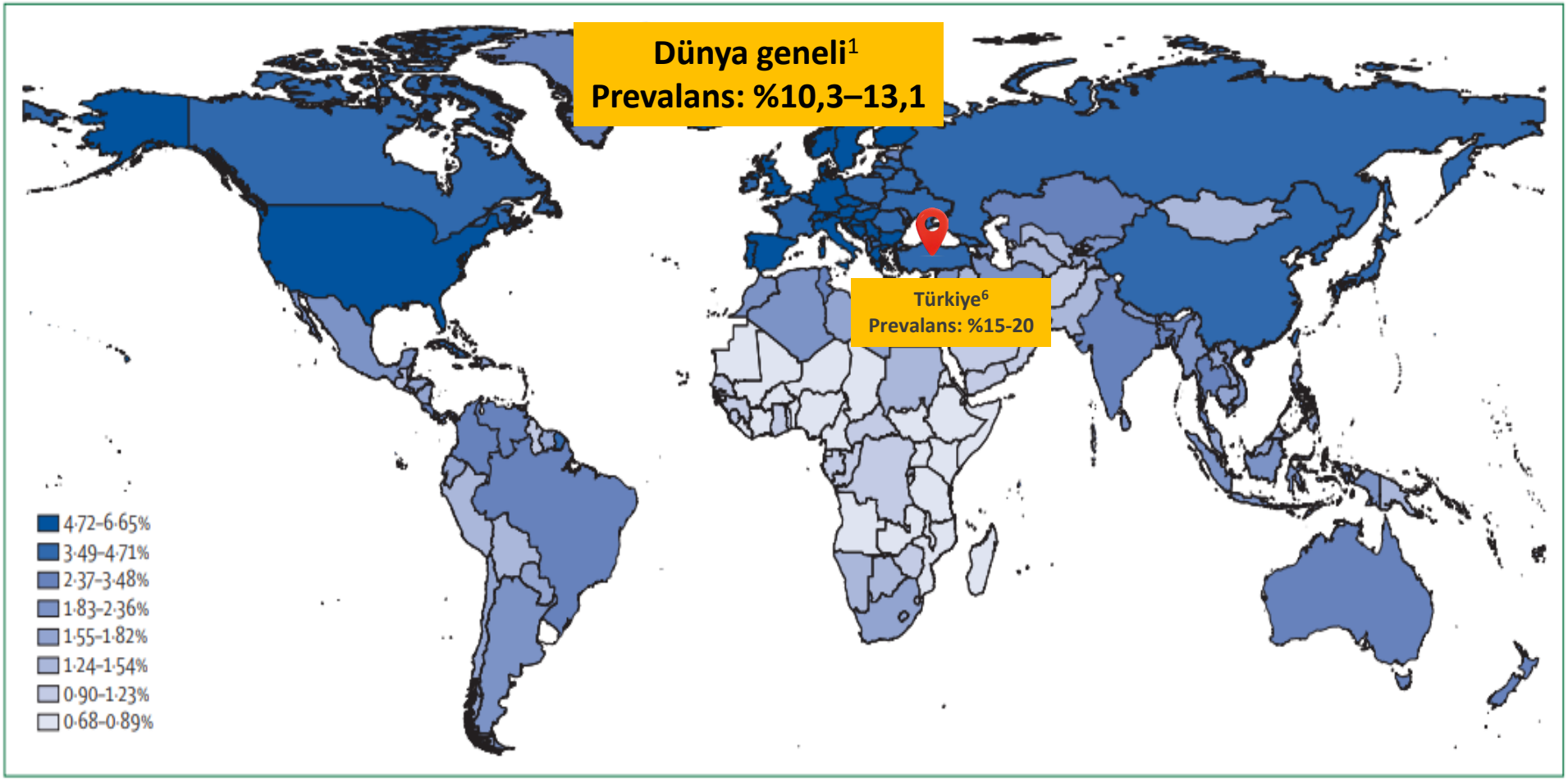


Figure 2: Global crude percentage prevalence of COPD by country, according to GBD 2021
COPD=chronic obstructive pulmonary disease. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study.

KOAH'ın Küresel ve Türkiye'deki Prevalans Yükü

Türkiye'deki yüksek prevelans yükü
Sigara kullanımı , biyokütle maruziyeti, hava kirliliği, yaşlanan nüfus

Global Burden of Diseases, Injuries, and Risk Factors Study 2021 (GBD 2021).de Oca MM, et al.Lancet Respir Med. 2025 Aug;13(8):709-724.

Table 3. Ten Leading Causes of Death, by Income Group, 2030 (Baseline Scenario)

Income Group	Rank	Disease or Injury	Percent of Total Deaths
World	1	Ischaemic heart disease	13.4
	2	Cerebrovascular disease	10.6
	3	HIV/AIDS	8.9
	4	COPD	7.8
	5	Lower respiratory infections	3.5
	6	Trachea, bronchus, lung cancers	3.1
	7	Diabetes mellitus	3.0
	8	Road traffic accidents	2.9
	9	Perinatal conditions	2.2
	10	Stomach cancer	1.9
High-income countries	1	Ischaemic heart disease	15.8
	2	Cerebrovascular disease	9.0
	3	Trachea, bronchus, lung cancers	5.1
	4	Diabetes mellitus	4.8
	5	COPD	4.1
	6	Lower respiratory infections	3.6
	7	Alzheimer and other dementias	3.6
	8	Colon and rectum cancers	3.3
	9	Stomach cancer	1.9
	10	Prostate cancer	1.8
Middle-income countries	1	Cerebrovascular disease	14.4
	2	Ischaemic heart disease	12.7
	3	COPD	12.0
	4	HIV/AIDS	6.2
	5	Trachea, bronchus, lung cancers	4.3
	6	Diabetes mellitus	3.7
	7	Stomach cancer	3.4
	8	Hypertensive heart disease	2.7
	9	Road traffic accidents	2.5
	10	Liver cancer	2.2
Low-income countries	1	Ischaemic heart disease	13.4
	2	HIV/AIDS	13.2
	3	Cerebrovascular disease	8.2
	4	COPD	5.5
	5	Lower respiratory infections	5.1
	6	Perinatal conditions	3.9
	7	Road traffic accidents	3.7
	8	Diarrhoeal diseases	2.3
	9	Diabetes mellitus	2.1

Table 5. Changes in Rankings for 15 Leading Causes of DALYs, 2002 and 2030 (Baseline Scenario)

Category	Disease or Injury	2002 Rank	2030 Ranks	Change in Rank
Within top 15	Perinatal conditions	1	5	−4
	Lower respiratory infections	2	8	−6
	HIV/AIDS	3	1	+2
	Unipolar depressive disorders	4	2	+2
	Diarrhoeal diseases	5	12	−7
	Ischaemic heart disease	6	3	+3
	Cerebrovascular disease	7	6	+1
	Road traffic accidents	8	4	+4
	Malaria	9	15	−6
	Tuberculosis	10	25	−15
	COPD	11	7	+4
	Congenital anomalies	12	20	−8
	Hearing loss, adult onset	13	9	+4
	Cataracts	14	10	+4
	Violence	15	13	+2
Outside top 15	Self-inflicted injuries	17	14	+3
	Diabetes mellitus	20	11	+9

doi: 10.1371/journal.pmed.0030442.t005

KOAH'ta klinik ve yaşam kalitesi yükü
3,23 milyon ölüm/yıl
≈ 9000 ölüm/gün

Mathers CD. PLoS Med. 2006 Nov;3(11):e442. World Health Organization. Chronic obstructive pulmonary disease (COPD). 16 March 2023.

Klinik Önceliklerin Değerlendirilmesi

KOAH Alevlenmeler mi?

Geleneksel akut atak odaklı müdahale modeli, hastalığın asıl ilerleme hızını kontrol altına almakta yeterli midir?

Stabil KOAH mı?

Kesitsel bazda dengede görünen hastaların anlık klinik sapmalarını değişkenliğin ölçmek öncelikli odağı mı olmalı?

KOAH'ta "Hastalık Stabilitesi"ni sağlamak mı?

Semptom, akciğer fonksiyonu ve atak sıklığı birlikte olarak hedefleyen, en az 12 aylık boylamsal istikrarı yakalamak mı?

Alevlenmeler KOAH'ta FEV1 kaybını hızlandıran temel belirleyici

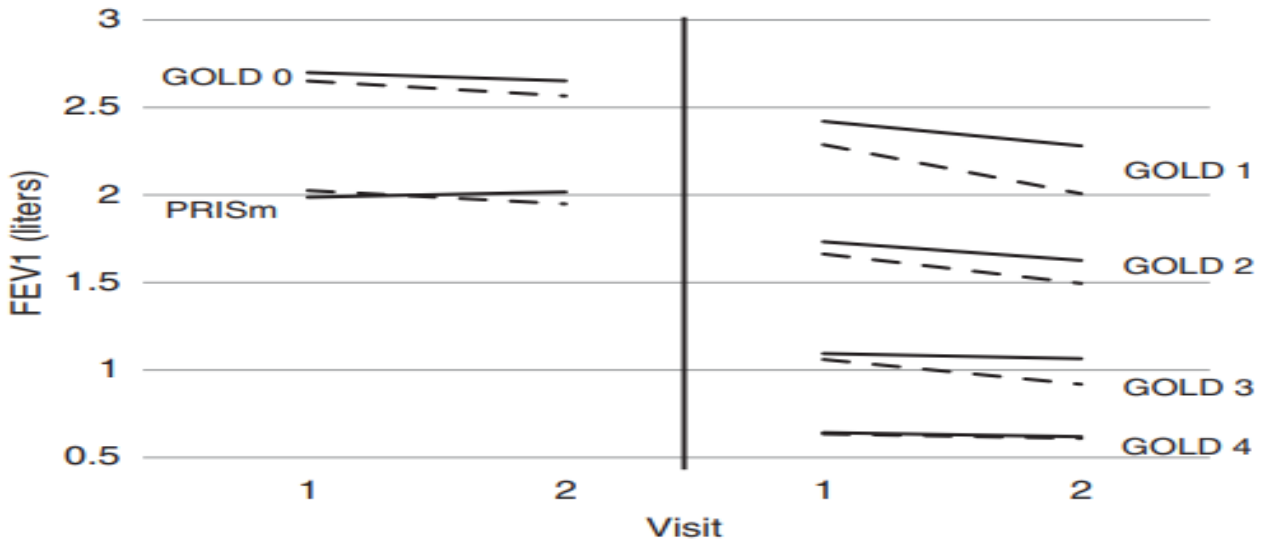


Figure 1. Estimated FEV_1 changes by Global Initiative for Chronic Obstructive Lung Disease (GOLD) group and severe exacerbations status. Estimates were obtained from linear mixed model fits (*see* STATISTICAL ANALYSES section) for the completer and late subjects. The plot demonstrates that those with at least one severe exacerbation (*dashed lines*) had faster declines in FEV_1, on average, compared with those that did not (*solid lines*), for each GOLD group. PRISm = preserved ratio impaired spirometry.

Etki özellikle erken KOAH evrelerinde belirgin

GOLD 1: Her alevlenme → ek −23 mL/yıl FEV_1 kaybı

Her ağır alevlenme → ek −87 mL/yıl FEV_1 kaybı

GOLD 2–3: FEV1 kaybı ↓

PRISm: Alevlenme sıklığı yüksek, ek FEV_1 kaybı belirgin değil (PRISm heterojen bir ara fenotip olabilir)

Dransfield MT, et al. Am J Respir Crit Care Med. 2017 Feb 1;195(3):324-330.

KOAH'ta klinik kontrol (Clinical Control)

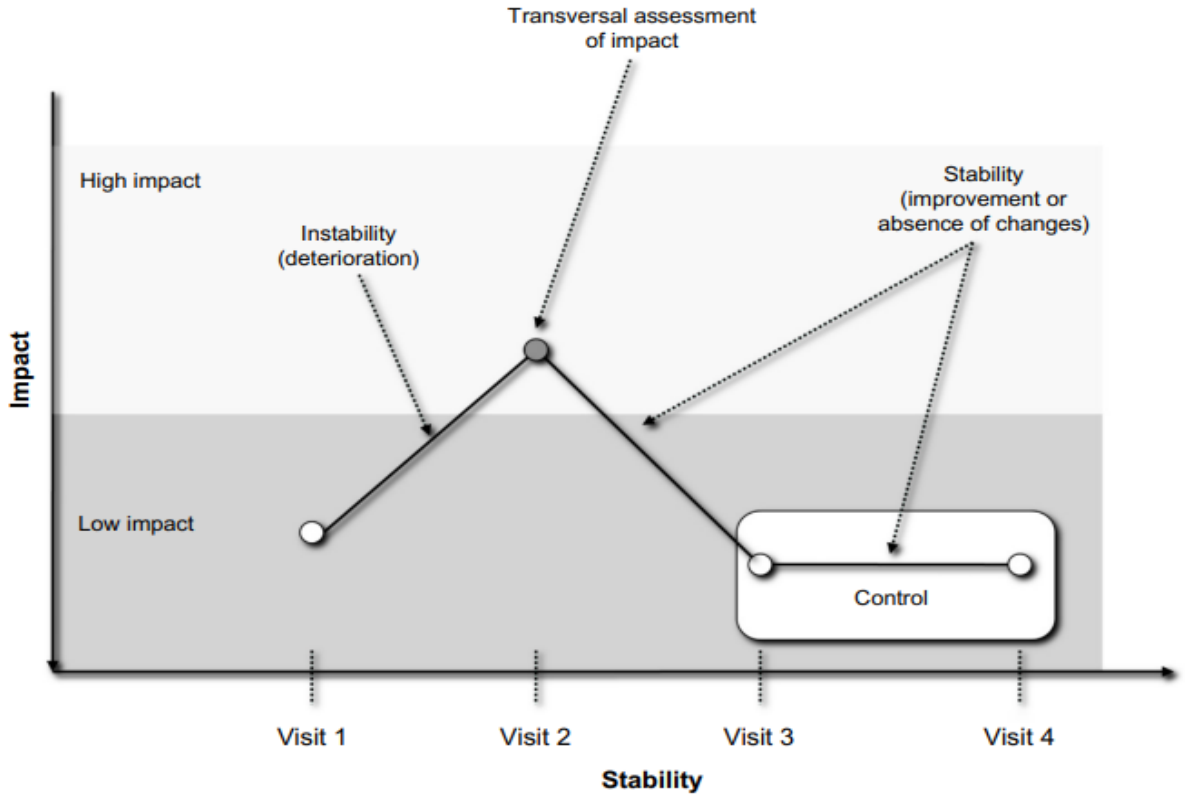


Figure 1 Representation of the concept of impact, stability, and control in COPD.
Notes: The circles represent the transversal measurement of the clinical situation at different times (impact); the lines show the analysis of the changes (degree of stability) and the gray area marks the concept of control understood as the desirable situation in which a condition of low impact is maintained over a long period of time according to the severity of the disease. *Eur Respir J* erj00644-2014;

Kesitsel etki (cross-sectional impact) ve uzunlamasına /zamansal (longitudinal stability)

Soler-Cataluna JJ, et al.Int J Chron Obstruct Pulmon Dis 2014;9:1397–1405

Klinik Kontrol Anketi (CC)

Stabilite (Stability)

- **Son 3 aydaki alevlenmeler**
- **Son kontrolden bu yana sağlık algısındaki değişim**

Etki (Impact)

- **Kurtarıcı ilaç kullanımı**
- **Dispne düzeyi**
- **Günlük yürüme süresi**
- **Balgam rengi**

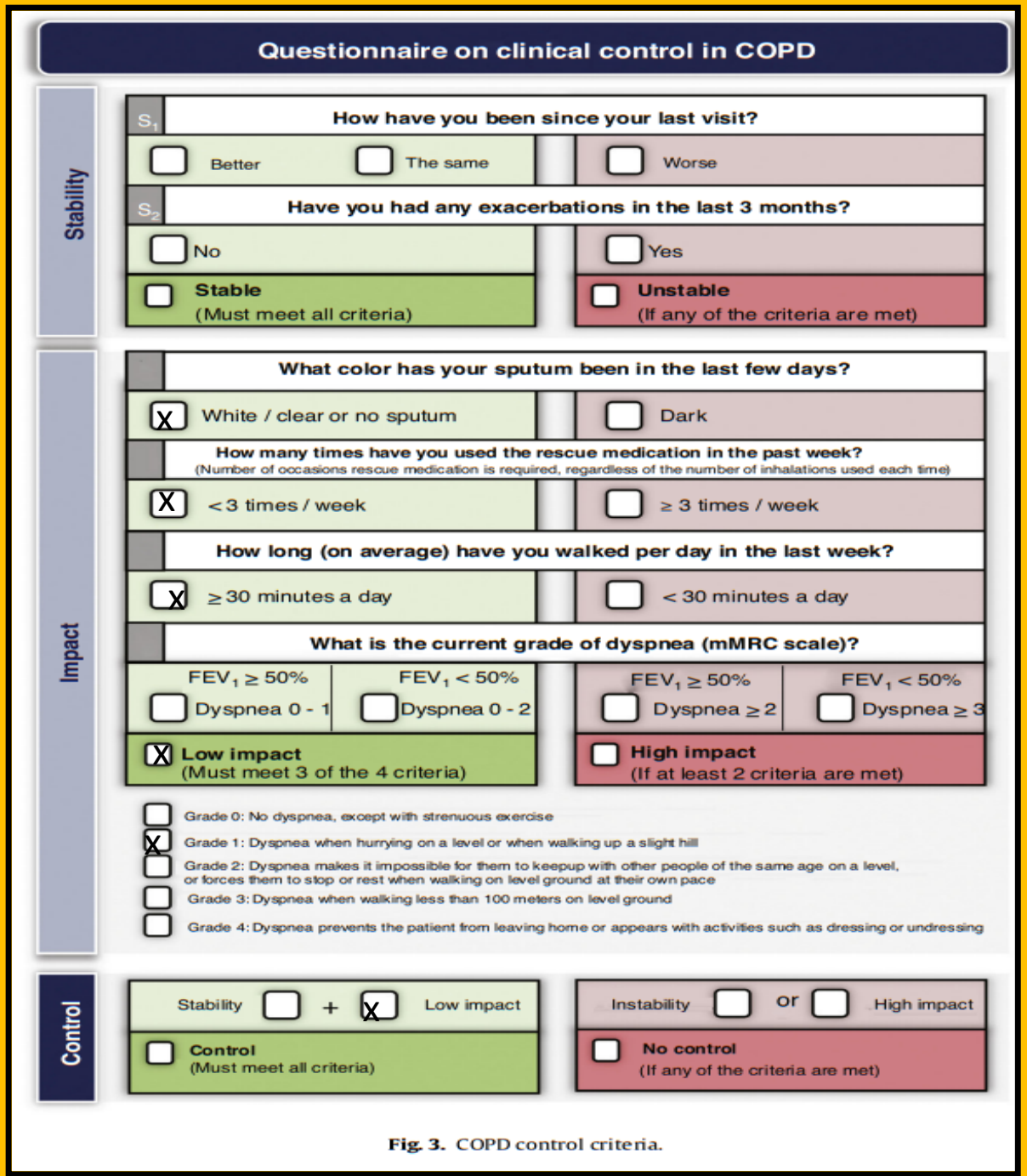


Fig. 3. COPD control criteria.

Miravitlles M,, et al.Arch Bronconeumol 2022; 58:69–81.

Klinik kontrol kriterlerini karşılayan KOAH…

Table 3 HR of controlled compared to non-controlled patients according to the different criteria used

	HR	95% CI
Control by clinical criteria		
Time to combined event	**0.49**	**0.36–0.66**
Time to exacerbation requiring hospitalization	**0.27**	**0.15–0.47**
Time to emergency department exacerbation	**0.42**	**0.23–0.77**
Time to ambulatory exacerbation	**0.53**	**0.38–0.73**
Control by CAT criteria		
Time to combined event	0.82	0.60–1.14
Time to exacerbation requiring hospitalization	0.61	0.33–1.12
Time to emergency department exacerbation	0.72	0.37–1.42
Time to ambulatory exacerbation	**0.68**	**0.48–0.97**

Values in bold are statistically significant.
CAT, COPD Assessment Test; COPD, chronic obstructive pulmonary disease; HR, hazard ratio, risk attributable to presenting an event in controlled patients versus non-controlled patients.

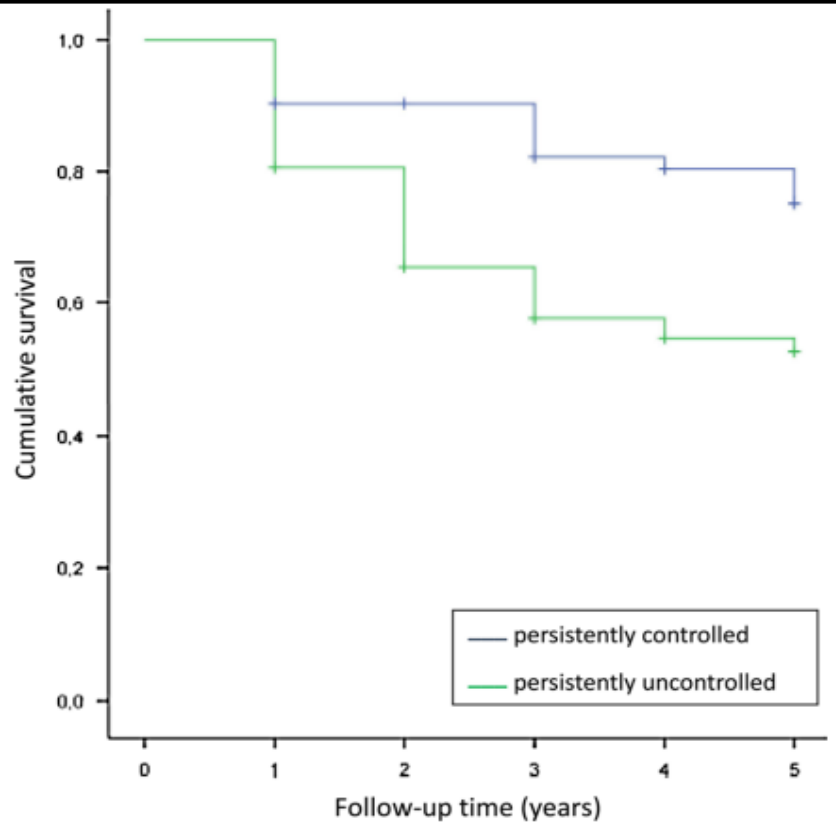


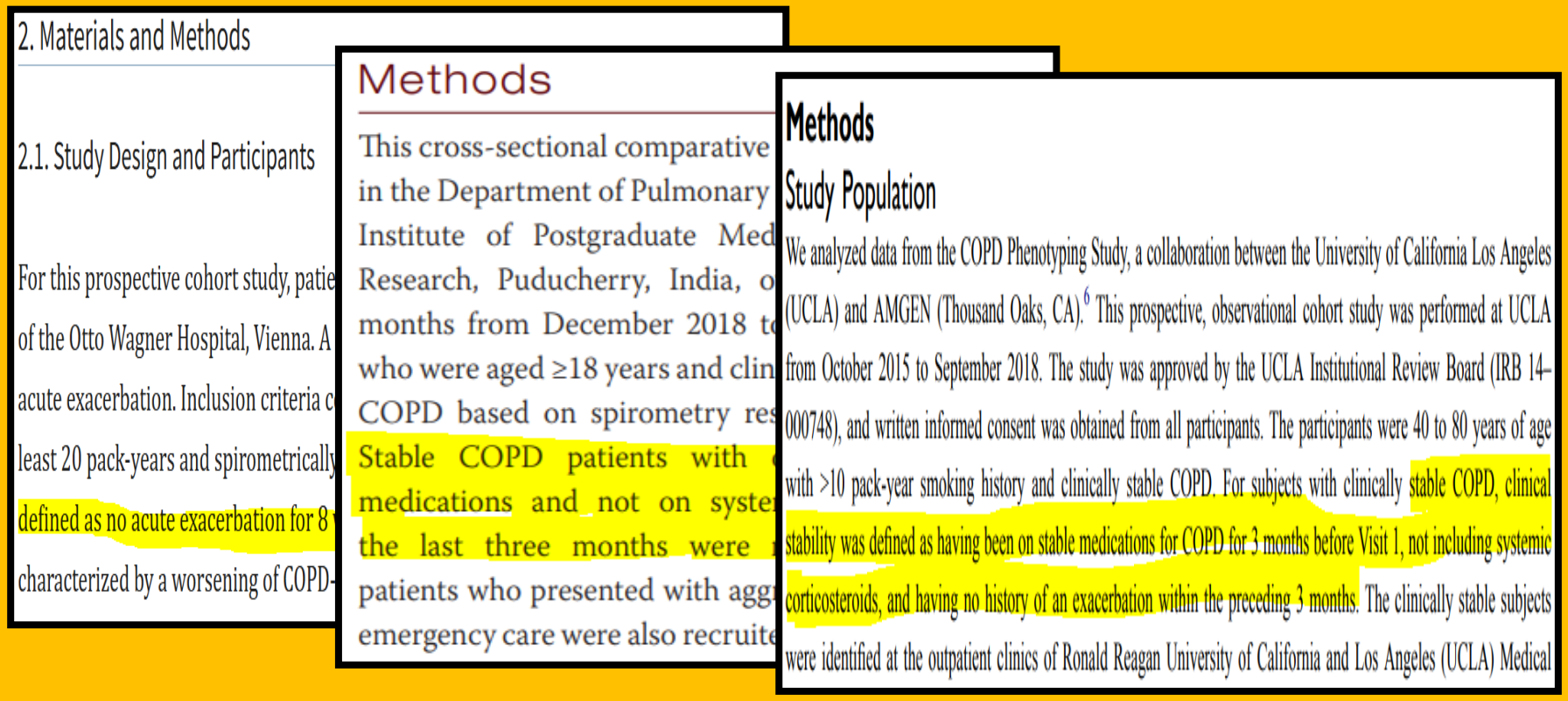
Fig. 3 Kaplan–Meier analysis for all-cause mortality. Persistently controlled patients were associated with a longer survival time than persistently uncontrolled patients

- **Hastaneye yatış gerektiren alevlenme riski HR 0,27**
- **Acil başvuru gerektiren alevlenme riski HR 0,42**
- **Ayaktan tedavi edilen alevlenme riski HR 0,53**
- **CAT'e göre kontrol sağlanan hastalarda ayaktan alevlenme riski daha düşük HR 0,68**

5 yıllık izlemde kontrol kriterlerini karşılayan grupta sağkalım daha yüksek

Miravitlles M, et al.Respirology. 2020 Nov;25(11):1136-1143.Calle Rubio M, et al.Respir Res. 2021 Feb 4;22(1):36

“Stabil KOAH ” ile “Hastalık stabilitesi ” aynı kavram değil…



2. Materials and Methods

2.1. Study Design and Participants

For this prospective cohort study, patie
of the Otto Wagner Hospital, Vienna. A
acute exacerbation. Inclusion criteria c
least 20 pack-years and spirometrically
defined as no acute exacerbation for 8
characterized by a worsening of COPD-

Methods

This cross-sectional comparative
in the Department of Pulmonary
Institute of Postgraduate Med
Research, Puducherry, India, o
months from December 2018 t
who were aged ≥18 years and clin
COPD based on spirometry res
Stable COPD patients with
medications and not on syste
the last three months were
patients who presented with agg
emergency care were also recruite

Methods

Study Population

We analyzed data from the COPD Phenotyping Study, a collaboration between the University of California Los Angeles (UCLA) and AMGEN (Thousand Oaks, CA).[6] This prospective, observational cohort study was performed at UCLA from October 2015 to September 2018. The study was approved by the UCLA Institutional Review Board (IRB 14-000748), and written informed consent was obtained from all participants. The participants were 40 to 80 years of age with >10 pack-year smoking history and clinically stable COPD. For subjects with clinically stable COPD, clinical stability was defined as having been on stable medications for COPD for 3 months before Visit 1, not including systemic corticosteroids, and having no history of an exacerbation within the preceding 3 months. The clinically stable subjects were identified at the outpatient clinics of Ronald Reagan University of California and Los Angeles (UCLA) Medical

Stabil KOAH Tanımı

→ Klinik çalışmalarda yaygın giriş kriteri

✓ Alevlenme yok

✓ Tedavi değişikliği yok

✓ Semptomlarda kötüleşme yok

1–4 aylık dönemde klinik stabilite

Hastalık stabilitesi kavramının temel bileşeni

Goals for Treatment of Stable COPD

Figure 3.1

- Relieve Symptoms
- Improve Exercise Tolerance
- Improve Health Status

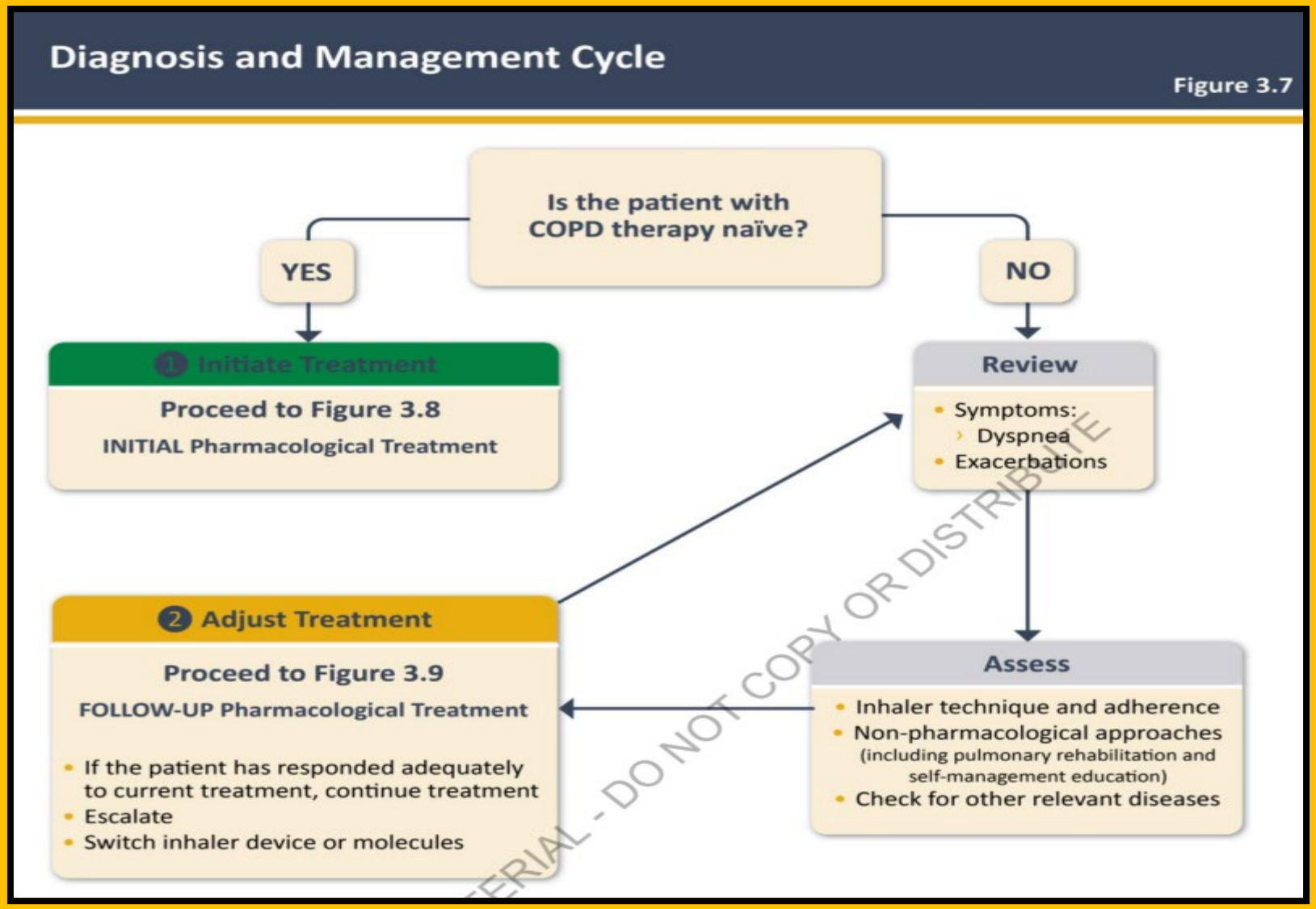
REDUCE SYMPTOMS

AND

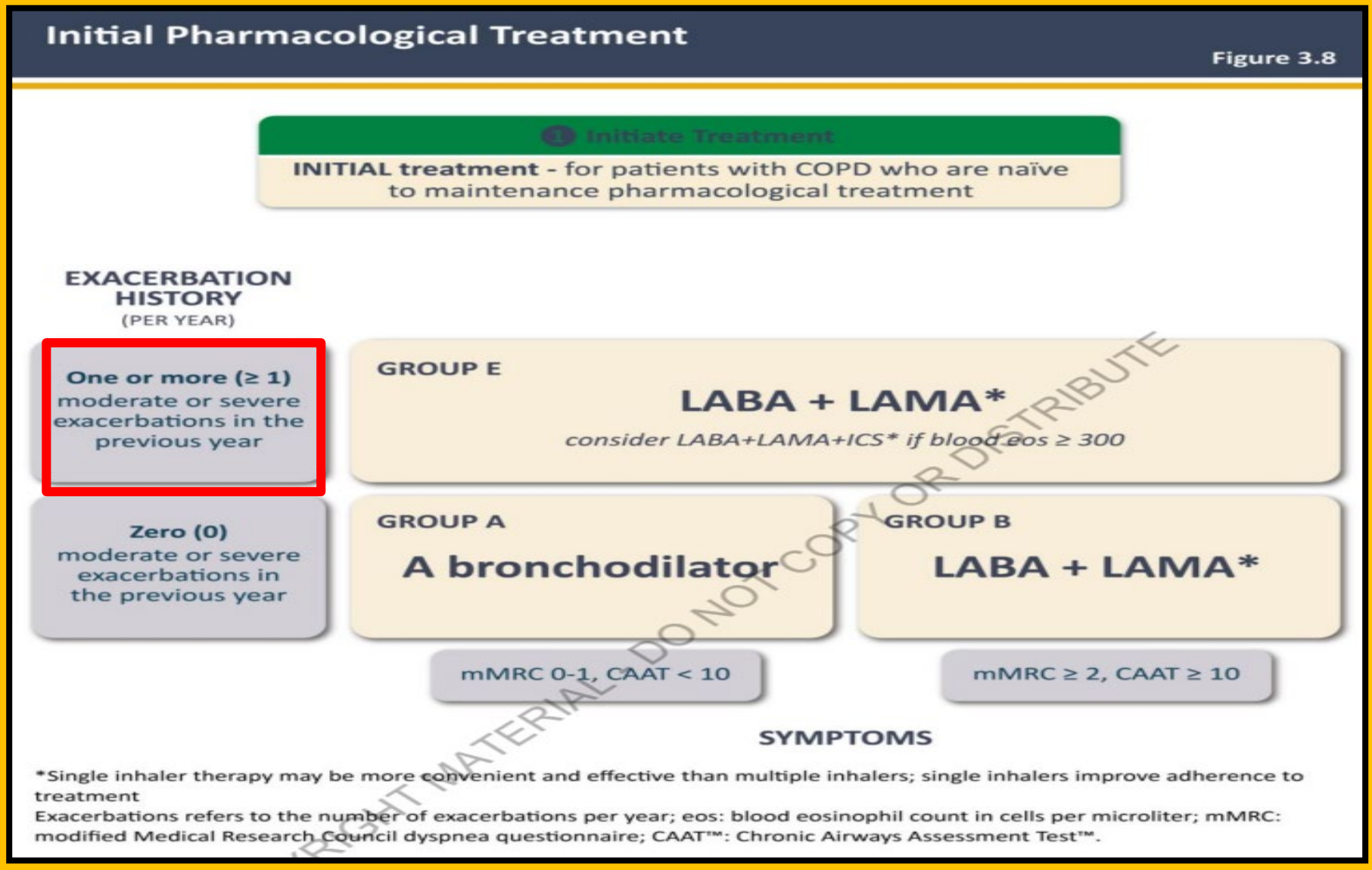
- Prevent Disease Progression
- Prevent and Treat Exacerbations
- Reduce Mortality

REDUCE RISK

Stabil KOAH tedavisinde yalnızca semptom değil, gelecekteki riskin azaltılması



KOAH yönetimi tek seferlik değil; değerlendir–tedaviyi başlat/optimize et–yanıtı izle

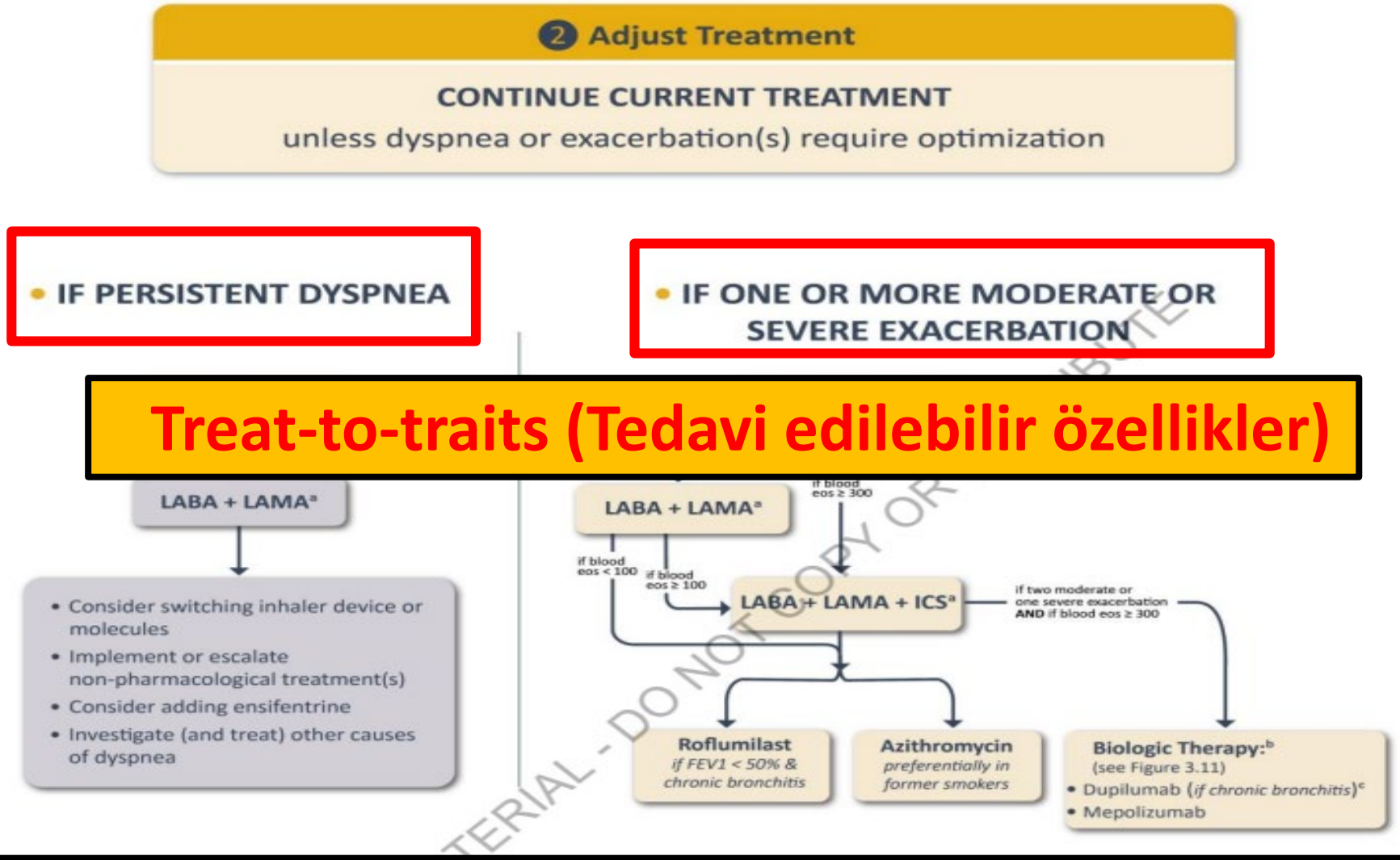


GOLD 2026'da başlangıç tedavi algoritması

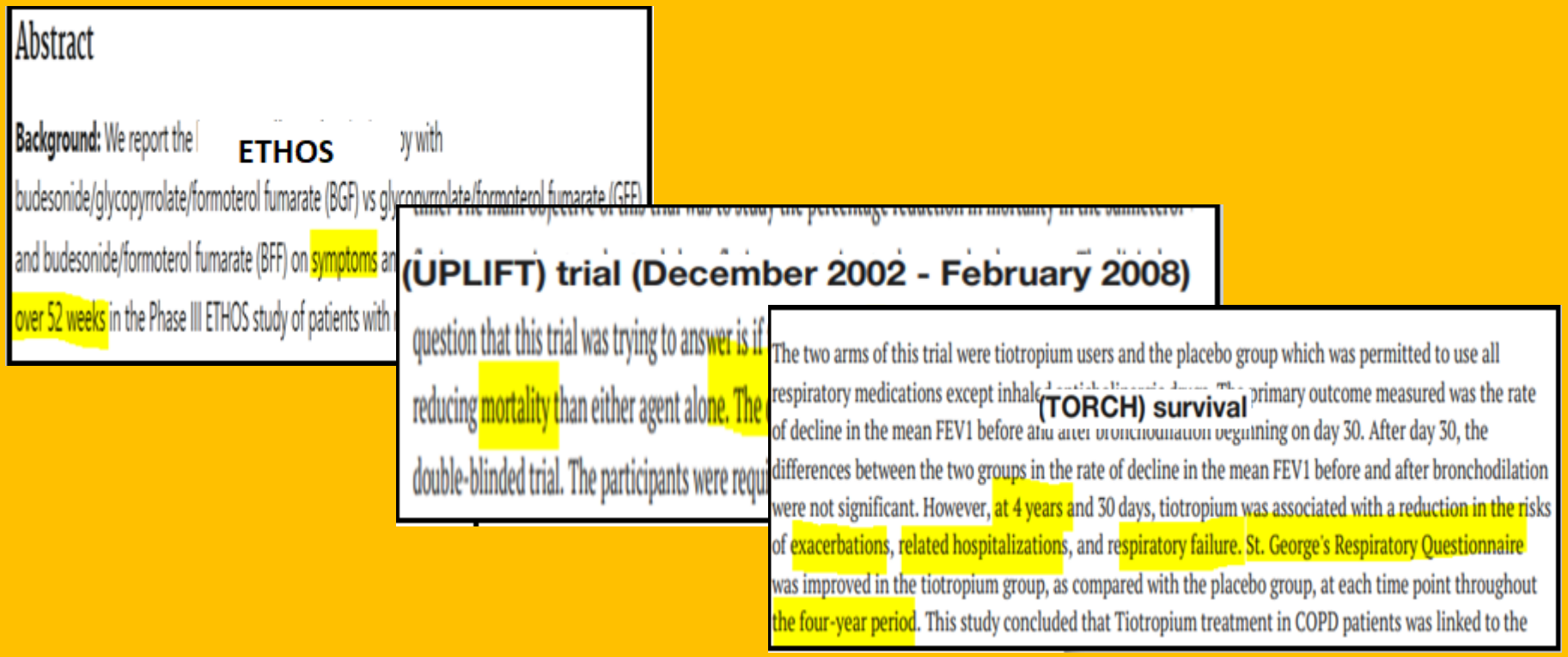
Son 1 yılda 1 ve üstü orta veya ağır alevlenme tedavi eskalasyonu

Follow-up Pharmacological Treatment

Figure 3.9



Mevcut tedaviye devam et, dispne veya alevlenme varsa tedaviyi optimize et!!!

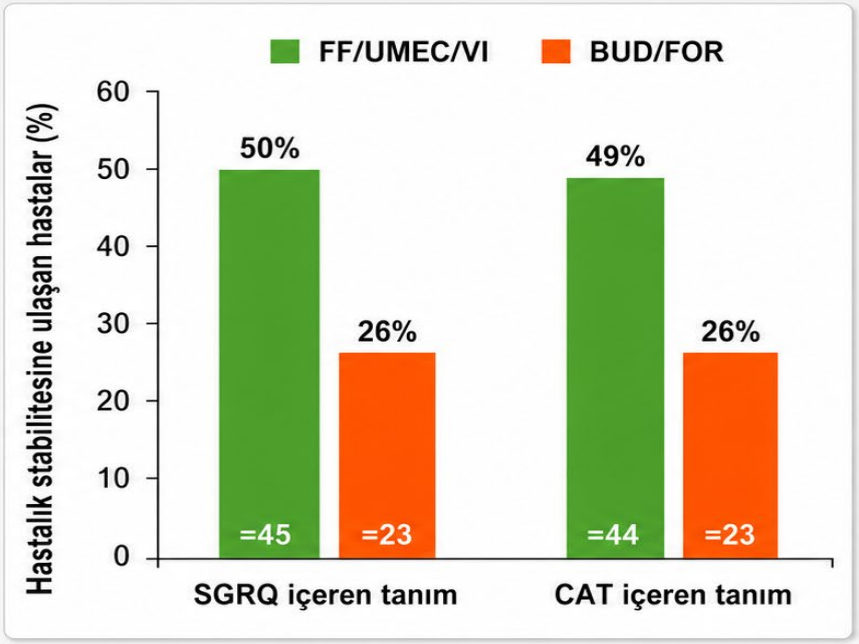


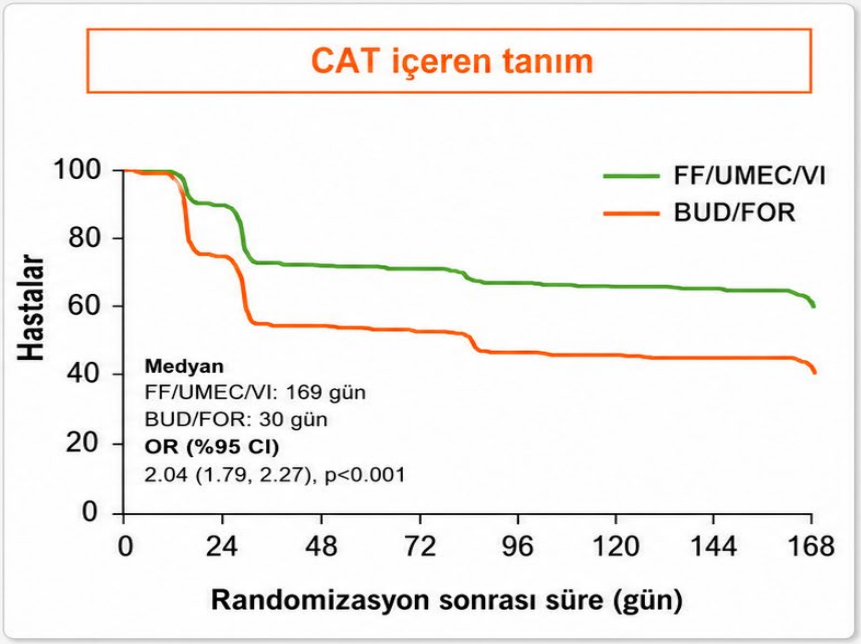
Hastalık Stabilitesi Tanımı

- **KOAH klinik çalışmalarında yeni bir sonlanım noktası adayı (1-5YIL)**
- **Mevcut ve yeni tedavilerin etkinliğini değerlendirmeyi kolaylaştırır**
- **Sadece iyileşmeyi değil, progresyonun önlenmesini de yansıtır**

Martinez FJ, et al.Respir Med 2021;185:106509ElSaygh J, et al.Cureus. 2021 Apr 21;13(4):e14618

Hastalık stabilitesi ATS ve ERS 2024'te öne çıkan yeni bir tedavi hedefi …





FF/UMEC/VI ile iki kat fazla hasta 24. haftada hastalık stabilitesine ulaşmış ve stabilitenin korunma süresi 5 kattan daha fazladır.

Singh D ve ark. ATS 2024, A3826.

FULFIL Post Hoc Analizi
Hastalık stabilitesi tanımı

- **Orta/ağır alevlenme olmaması**
- **FEV_1'de <100 mL kötüleşme**
- **SGRQ'da <4 puan kötüleşme**
- **CAT'te <2 puan kötüleşme**

24. Haftada Hastalık Stabilitesi

SGRQ içeren tanım
FF/UMEC/VI: **%50** BUD/FOR: **%26**
CAT içeren tanım
FF/UMEC/VI: **%49** BUD/FOR: **%26**

Singh D, et al. Am J Respir Crit Care Med 2024;209:A3826.

- no accelerated loss of lung function.

While reducing disease activity can prevent symptom worsening and may improve symptoms, additional interventions to further optimize symptom relief may be required. Two terms with similar, but importantly different definitions, have been proposed to describe the clinical state achieved when considering these outcomes over time:

- disease stability – a low disease activity state with no exacerbations, no worsening of symptoms and no accelerated loss of lung function[556]
- disease control – a state of low disease activity, defined by no exacerbations and no worsening of symptoms, plus low impact on the patient defined as symptoms below a threshold value.[557]

Hastalık Stabilitesi

Düşük hastalık aktivitesi

- **Alevlenme yok**
- **Semptom kötüleşmesi yok**
- **Hızlanmış FEV_1 kaybı yok**

Hastalık Kontrol(Klinik kontrol)

Düşük hastalık aktivitesi

- **Alevlenme yok**
- **Semptom kötüleşmesi yok**

Semptomlar belirlenen eşik değerin altında

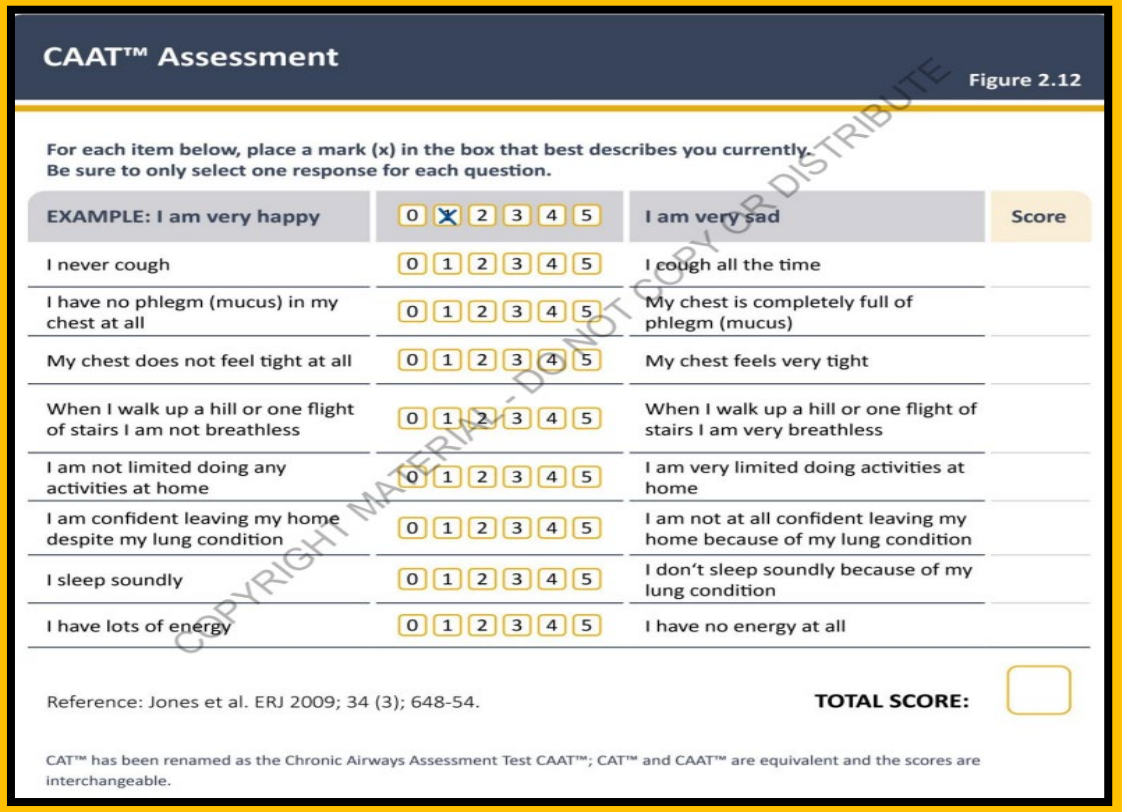
Sağlık durumu ve semptom stabilitesinin değerlendirilmesi

KOAH özgü anketler

- St. George Solunum Anketi (SGRQ)
- CAAT /CAT
- CCQ = Clinical COPD Questionnaire

Genel anketler

- EuroQoL
- Short-Form Health Survey (SF-36)



CAAT™ Assessment — Figure 2.12

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	Score
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	

Reference: Jones et al. ERJ 2009; 34 (3); 648-54. **TOTAL SCORE:**

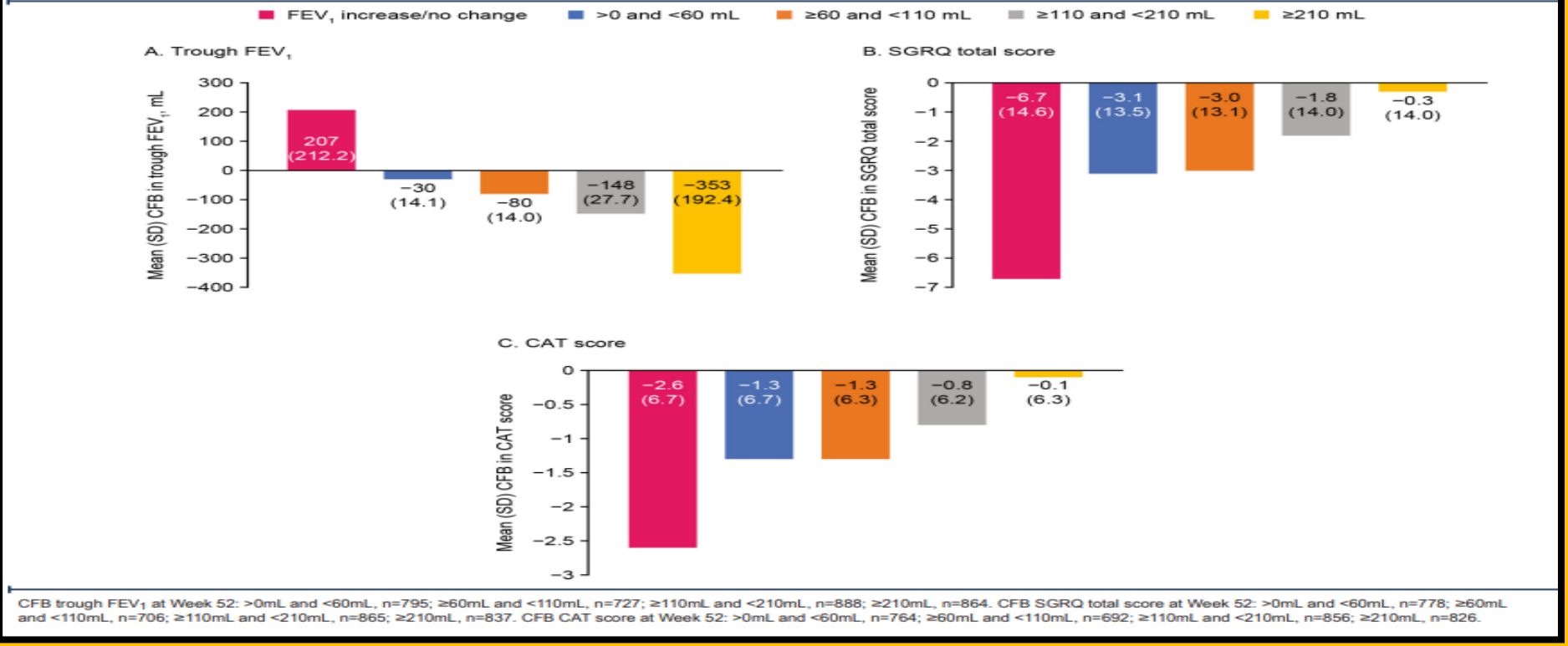
CAT™ has been renamed as the Chronic Airways Assessment Test CAAT™; CAT™ and CAAT™ are equivalent and the scores are interchangeable.

CAAT / CAT Değerlendirmesi

- 8 madde ,Toplam skor: 0–40
- Yüksek skor: Daha fazla semptom yükü
- ≥10 puan : Klinik olarak anlamlı semptom düzeyi (SGRQ ≥25'e yaklaşık karşılık gelen pratik eşik değer)

Akciğer fonksiyon kaybının önlenmesi hastalık stabilitesinin temel bileşeni..

Figure 1. Change from Baseline in Trough Forced Expiratory Volume in 1 Second, St George's Respiratory Questionnaire Total Score, and COPD Assessment Test Score at Week 52 Across Forced Expiratory Volume in 1 Second-Decrease Subgroups



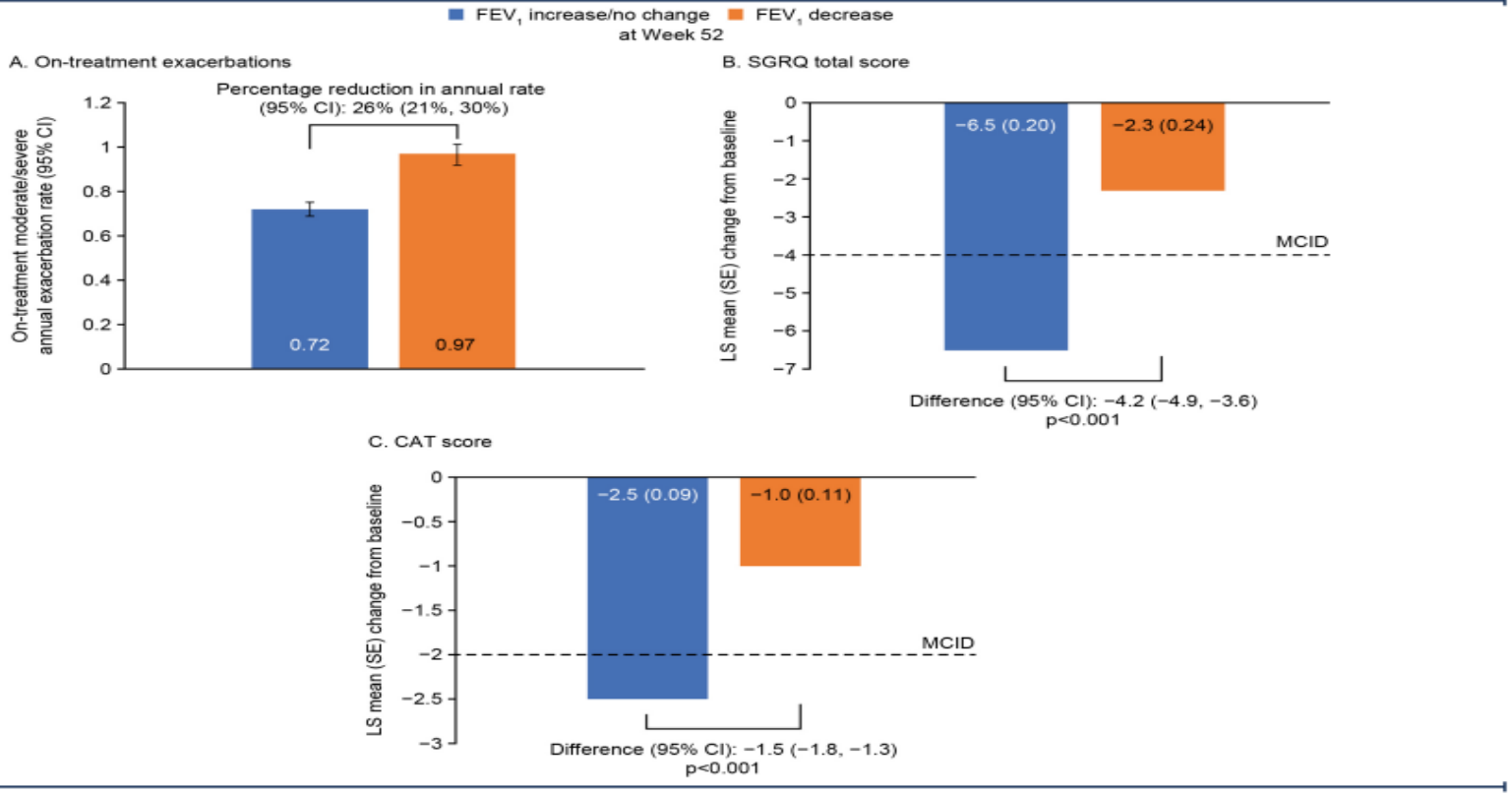
CFB trough FEV_1 at Week 52: >0mL and <60mL, n=795; ≥60mL and <110mL, n=727; ≥110mL and <210mL, n=888; ≥210mL, n=864. CFB SGRQ total score at Week 52: >0mL and <60mL, n=778; ≥60mL and <110mL, n=706; ≥110mL and <210mL, n=865; ≥210mL, n=837. CFB CAT score at Week 52: >0mL and <60mL, n=764; ≥60mL and <110mL, n=692; ≥110mL and <210mL, n=856; ≥210mL, n=826.

IMPACT Çalışması/52 hafta

- **FEV_1'i korunan veya artan hastalarda sağlık durumu belirgin olarak daha iyi**
  SGRQ değişimi: −6,7 puan CAT değişimi: −2,6 puan
- **FEV_1 kaybı olan hastalarda**
  SGRQ değişimi: −0,3 ile −3,1 puan arasında CAT değişimi: −0,1 ile −1,3 puan arasında

Han MK, et Chronic Obstr Pulm Dis. 2024 Jan 25;11(1):106-113.

Figure 2. Comparison of On-Treatment Moderate/Severe COPD Exacerbations, St George's Respiratory Questionnaire Total Score, and COPD Assessment Test Score, at Week 52 Between Forced Expiratory Volume in 1 Second Decrease and Increase/No Change



Decreases in SGRQ total score and CAT score represent clinical improvement.

FEV1'de tek ölçüm yerine longitudinal /zamansal FEV_1 eğilimi izlenmeli

IMPACT Çalışması

52. haftada FEV_1'ini koruyan hastalarda alevlenme yükü/semptom yükü düzeyi düşük

Orta/ağır alevlenme oranı: 0,72'ye karşı 0,97

Yıllık alevlenme oranında %26 azalma (%95 GA: %21–30)

Han MK, et al.. Chronic Obstr Pulm Dis. 2024 Jan 25;11(1):106-113.

Hastalık stabilitesini değerlendirmede klinik açıdan en anlamlı eşik değerler nelerdir?

Table 1: Minimal Clinically Important Differences for Commonly Used Outcomes in Chronic Obstructive Pulmonary Disease

Endpoint	MCID (Improvement)	Method of Estimation	Reference
Lung function			
Trough FEV_1	100 ml	Anchor-based (exacerbations, patient perception, 2-yr decline in lung function)	9
Exacerbations	No validated MCID	—	—
Dyspnea			
TDI total score	1 unit	Anchor-based (physician's global evaluation score), distribution-based (SEM, 0.5 SD), expert preference	19
UCSD SOBQ	5 units	Anchor-based (CRQ dyspnea domain, TDI), distribution-based (SEM, Cohen's effect size), estimate by experienced users	20
Health status			
SGRQ total score	4 units	Anchor-based (MRC dyspnea grade, CRQ dyspnea domain, mortality rate), expert and patient preference	23
CRQ domain scores	0.5 units (average)*	Anchor-based (patient perspectives), distribution-based (SEM, Cohen's effect size), expert panel-based	24
Exercise capacity			
6-min walk distance	26 ± 2 m (patients with severe COPD)	Anchor-based (SGRQ, UCSD SOBQ), distribution-based (SEM, Cohen's effect size, empirical rule effect size)	31
Incremental shuttle walking test	47.5 m	Anchor-based (patient perception)	32
Endurance shuttle walking test	45–85 s	Anchor-based (patient perception), distribution-based (0.5 SD)	33
Constant-load cycling endurance tests	46–105 s	Distribution-based (0.5 SD)	8
Dyspnea during exercise tests			
Modified Borg scale	1 unit	Distribution-based (Cohen's effect size)	39
Visual analog scale	10–20 units	Distribution-based (Cohen's effect size)	39

Definition of abbreviations: COPD = chronic obstructive pulmonary disease; CRQ = Chronic Respiratory Questionnaire; MCID = minimal clinically important difference; MRC = Medical Research Council; SGRQ = St George's Respiratory Questionnaire; TDI = Transition Dyspnea Index; UCSD SOBQ = University of California, San Diego Shortness of Breath Questionnaire.
*The MCIDs for the individual domains differ around this mean estimate.

Minimal Klinik Olarak Önemli Farklılık (MCID)

- KOAH'ta akciğer fonksiyonu ve sağlık durumu için tanımlanmış
- Alevlenmeler için tanımlanmış bir MCID yok

Donohue JF. COPD 2005;2:111–124..Jones PW, et al.Am J Respir Crit Care Med. 2014 Feb 1;189(3):250-5.

	Baseline	Change over 12 months	p value
Mean age (years [SD])	70 (8)	..	..
FEV_1 (% predicted)	47·6 (44·4 to 50·8)	-1·7 (-6·9 to 3·4)	0·51
MRC	3·1 (3·0 to 3·3)	0·1 (-0·1 to 0·2)	0·35
ISW (m)	227 (208 to 247)	-15 (-43 to 12)	0·28
4MGS ($m\,s^{-1}$)	0·92 (0·89 to 0·95)	-0·04 (-0·06 to -0·02)	<0·0001
SGRQ			
Total	50·6 (48·0 to 53·1)	-0·3 (-4·4 to 3·9)	0·91
Symptoms	63·9 (60·9 to 67·0)	-2·5 (-7·4 to 2·4)	0·32
Activities	68·7 (65·4 to 72·0)	1·3 (-3·8 to 6·3)	0·62
Impact	35·9 (33·1 to 38·7)	0·0 (-4·3 to 4·3)	0·99
CAT	20·1 (19·1 to 21·2)	0·6 (-0·4 to 1·5)	0·25

Data are mean (95% CI) unless otherwise specified. FEV_1=forced expiratory volume in 1 s. MRC=Medical Research Council dyspnoea score. ISW=incremental shuttle walk. SGRQ=St George's Respiratory Questionnaire. 4MGS=4 m gait speed. CAT=COPD Assessment Test.

Table 4: **Baseline characteristics in patients with stable COPD and change over 12 months (Study 3; n=164)**

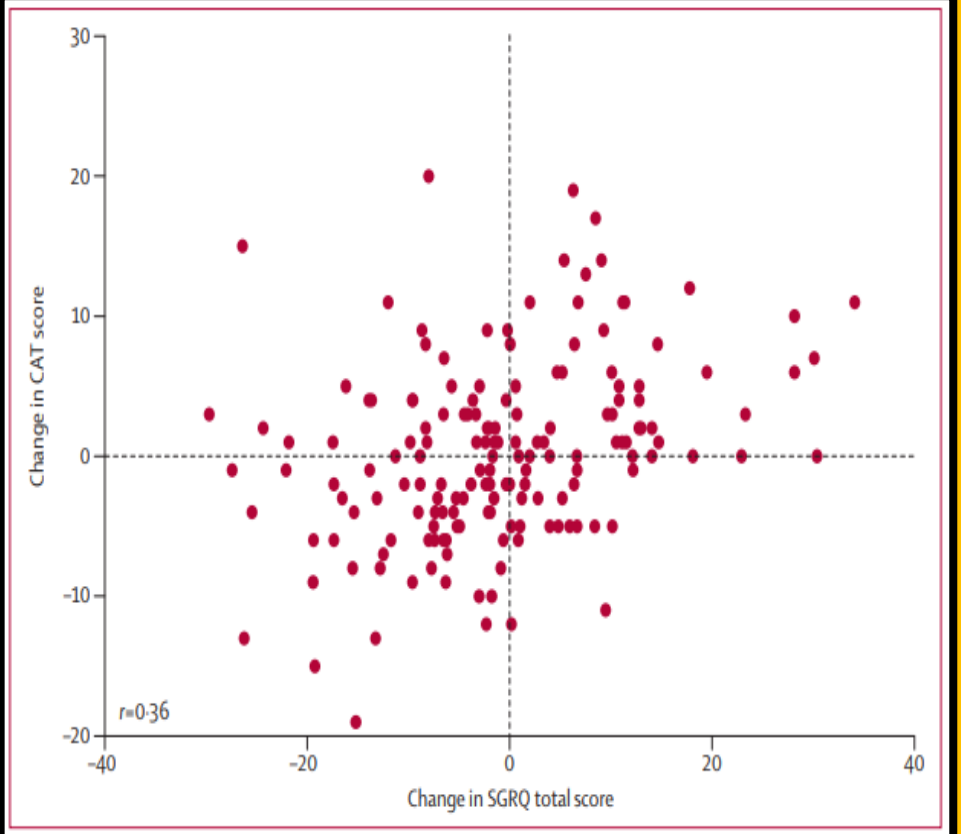


Figure 4: **Association between change in CAT score and change in SGRQ score over 12 months in stable patients with COPD (Study 3)**

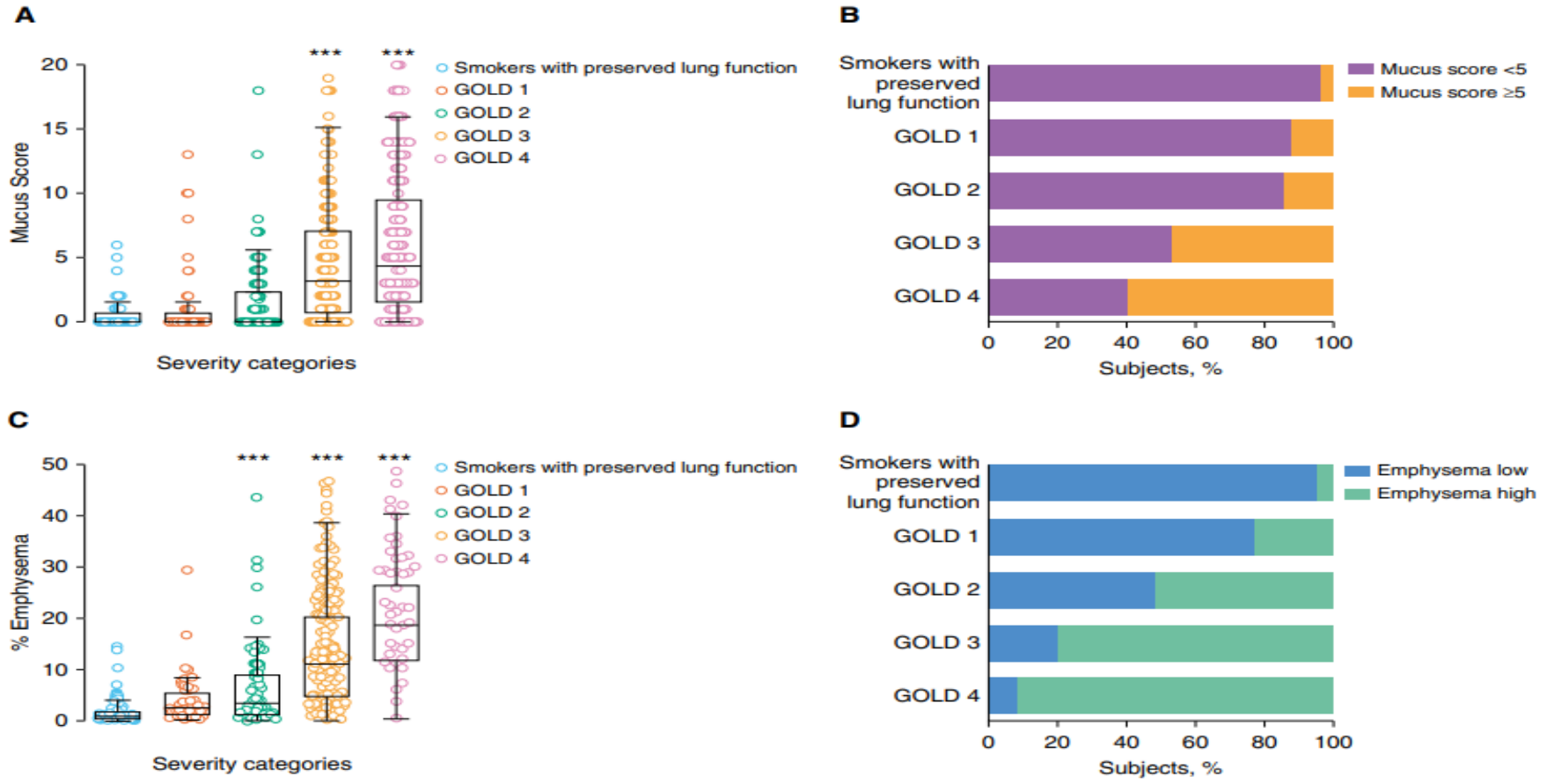
CAT=COPD Assessment Test. SGRQ=St George's Respiratory Questionnaire.

MCID FEV_1 için 100–140 mL mutlak değişim veya %15 değişim

MCID CAT için toplam skorunda >2 puanlık değişim anlamlı

Donohue JF. Minimal clinically important differences in COPD lung function. COPD 2005;2:111–124.Jones PW, et al.Am J Respir Crit Care Med. 2014 Feb 1;189(3):250-5.

KOAH hastalık stabilitesi ve mukus tıkaç (mucus plug)…



SPIROMICS kohortu, gözlemsel BT-görüntüleme

- **400 smoker / sigarayı bırakmış**
- **GOLD Evre 3–4'te mukus tıkacı skoru ≥5**
- **Mukus tıkacı skoru GOLD evresi ile↑**

Dunican EM, et al. *Am J Respir Crit Care Med.* 2021;203(8):957–968.

Stabilite /alevlenmede yeni görüntüleme biyobelirteci: Mukus tıkaç (mucus plug) olabilir mi?

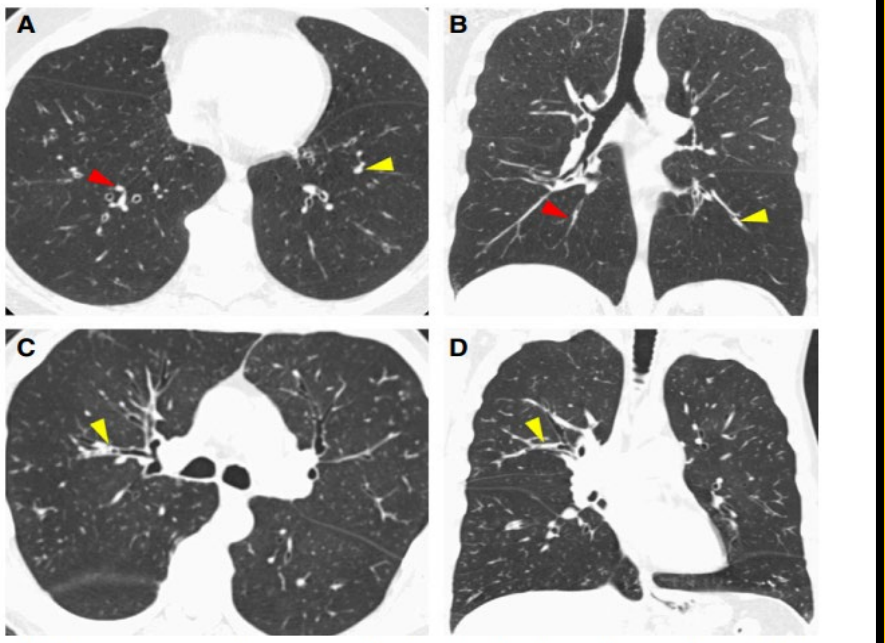
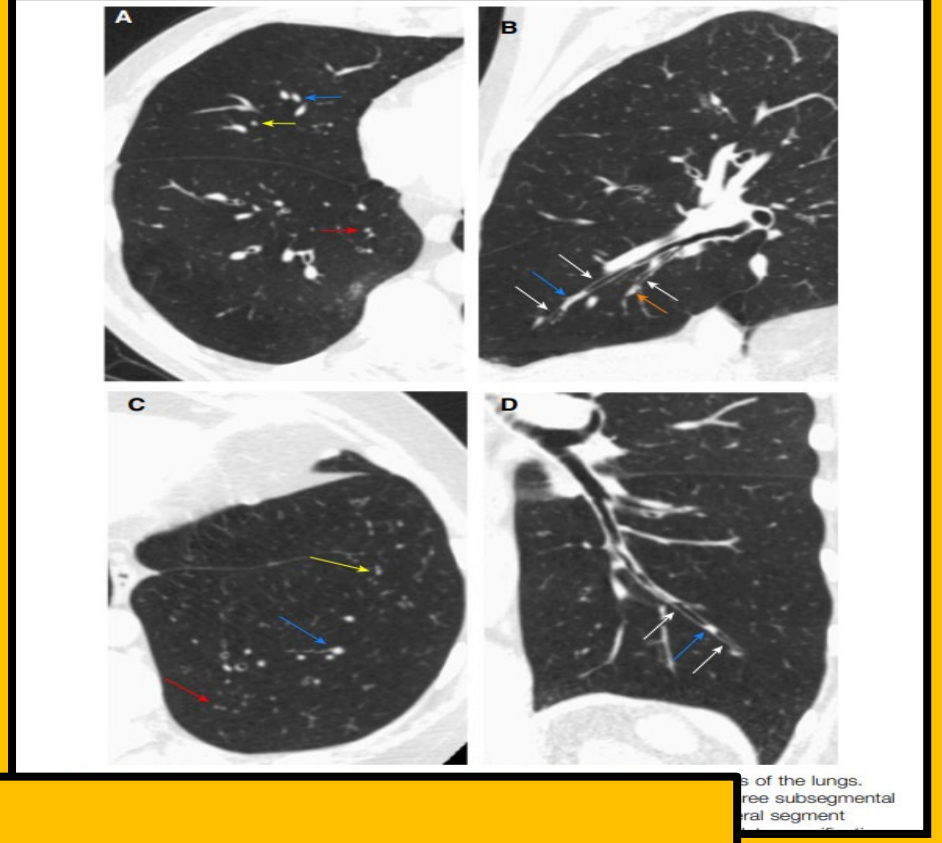


Figure 1. Airway mucus plugs in smokers with chronic obstructive pulmonary disease. (*A*) An example of two mucus plugs occluding subsegmental airways in the lower lobes identified as tubular opacifications in the axial plane (yellow and red arrowheads). (*B*) The mucus plugs in the coronal plane (the yellow and red arrowheads indicating the same mucus plugs as in *A*), revealing that the plugs extend for several millimeters and branch. (*C*) An example of a branching mucus plug occluding a segmental airway
same plug in the



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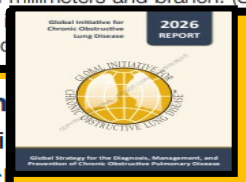


Mukus Tıkacı

- BT'de görüntülenebilir ve mukus tıkacı skoru ile değerlendirilebilir
- Yüksek skor, düşük FEV1,yüksek CAAT/CAT skoru, sık alevlenme ve mortalite artışı ile ilişkili
- Kan eozinofil yüksekliği ile ilişkisi, Tip 2 inflamasyon bağlantısı?
- Hastalık stabilitesi ve fenotipleme için aday görüntüleme biyobelirteci

Hastalık aktivitesi azaltılmasında alevlenme riski ve eozinofil düzeyi temelli ICS kararı

Factors to Consider when Initiating ICS Treatment

Figure 3.10

Factors to consider when adding ICS to long-acting bronchodilators:

(note the scenario is different when considering ICS withdrawal)

STRONGLY FAVORS USE	History of hospitalization(s) for exacerbations of COPD#
	≥ 2 moderate exacerbations of COPD per year#
	Blood eosinophils ≥ 300 cells/µL
	History of, or concomitant asthma
FAVORS USE	1 moderate exacerbation of COPD per year#
	Blood eosinophils 100 to < 300 cells/µL
AGAINST USE	Repeated pneumonia events
	Blood eosinophils < 100 cells/µL
	History of mycobacterial infection

#despite appropriate long-acting bronchodilator maintenance therapy (see Figures 3.8 & A3.1 for recommendations); *note that blood eosinophils should be seen as a continuum; quoted values represent approximate cut-points; eosinophil counts are likely to fluctuate.

- **KOAH alevlenmesi nedeniyle hastane yatışı öyküsü**
- **Yılda ≥2 orta şiddette KOAH alevlenmesi**
- **Kan eozinofil ≥300 hücre/µL**
- **Astım öyküsü veya eşlik eden astım**

Hastalık aktivitesi azaltılmasında alevlenme riski ve eozinofil düzeyi temelli biyolojik tedavi kullanım kararı

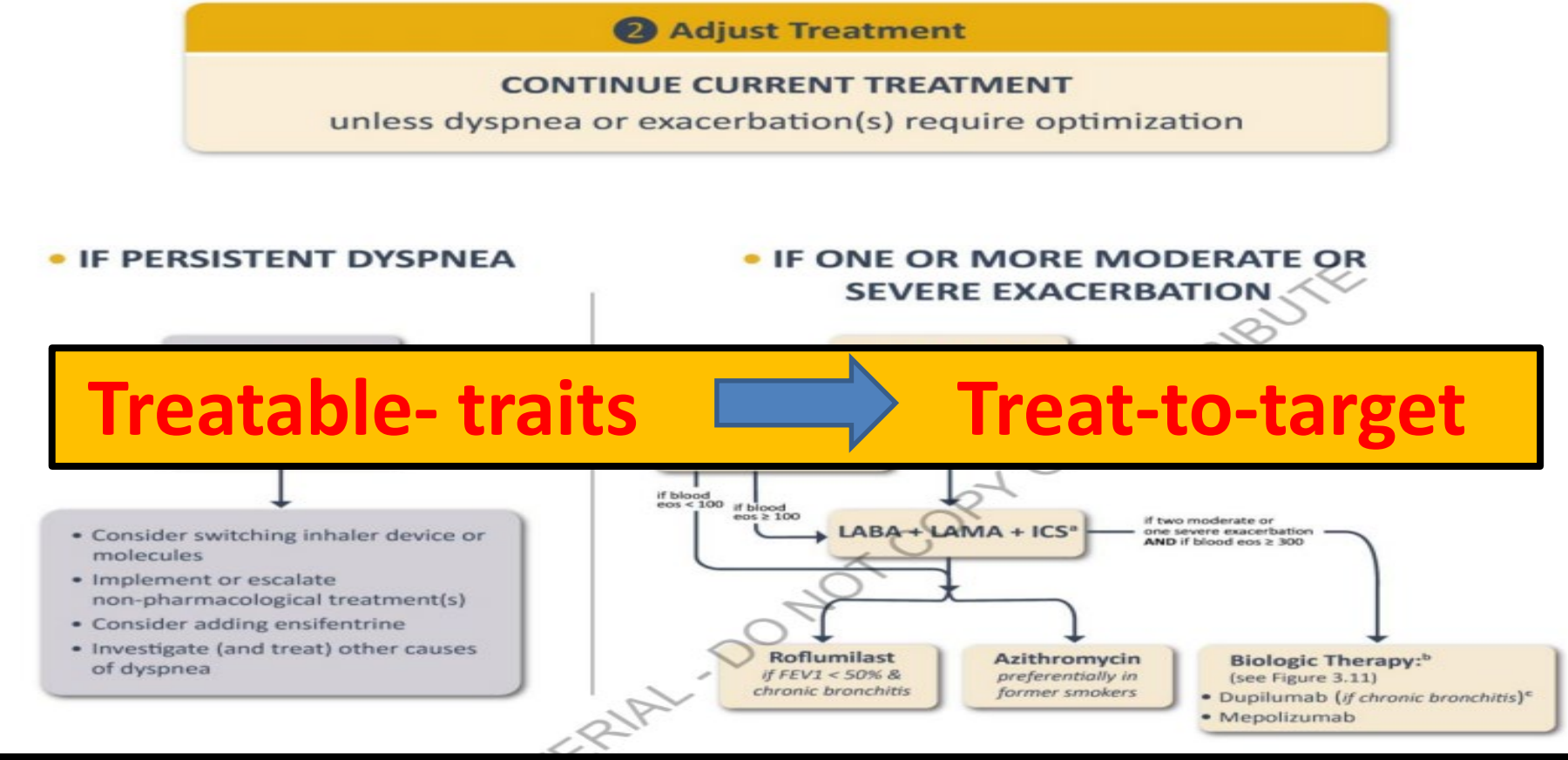
Evidence Supporting Use of Biologics in the Treatment of COPD

Figure 3.11

Molecule/RCT*	Key inclusion criteria[a]	Annualized rate of moderate/severe exacerbations	Lung function improvement (pre-BD FEV1)[d]	Quality of life improvement (SGRQ)
Dupilumab (300 mg/2 weeks)				
BOREAS[1] (n=939)	FEV1 post-BD 30-70% chronic bronchitis[b] eos ≥ 300 (screen)	RR 0.70; P < 0.001	83mL; P < 0.001 (95% CI: 42, 125)	-3.4; P = 0.002 (95% CI: -5.5, -1.3)
NOTUS[2] (n=935)	FEV1 post-BD 30-70% chronic bronchitis[b] eos ≥ 300 (screen)	RR 0.66; P < 0.001	62mL; P = 0.02 (95% CI: 11, 113)	-3.4[e] (95% CI: -5.8, -0.9)
Mepolizumab (100 mg/4 weeks)				
METREO[3] (n=674)	FEV1 post-BD 20-80% eos ≥ 150 (screen) or eos ≥ 300 (previous year)	RR 0.80; NS	19mL; NS (95% CI: -29, 67)	-1.8; NS (95% CI: -4.5, 0.8)
METREX[3] (n=836)	FEV1 post-BD 20-80% eos ≥ 150 (screen) or eos ≥ 300 (previous year)[c]	RR 0.82; P = 0.04	-10mL; NS (95% CI: -54, 33)	0.2; NS (95% CI: -2.8, 3.2)
MATINEE[4] (n=804)	FEV1 post-BD 20-80% eos ≥ 300 (screen) and eos ≥ 150 (previous year)	RR 0.79; P = 0.01	-9.0mL; NS (95% CI: -60.1, 42.1)	-2.3; NS (95% CI: -4.6, 0.1)

Boreas, Notus ,Metreo, Metrex, Matinee çalışmaları ve biyolojik ajanlar (DUPİLUMAB,MEPOLİZUMAB)

GOLD 2026
Stabilite Kriterlerini Sağlama Yaklaşımı



Persistan dispne
- LABA veya LAMA
- LABA + LAMA
- İnhaler cihaz/uyum
- Non-farmakolojik tedaviler gözden geçirilir

Orta/ağır alevlenme
- Kan eozinofil düzeyine göre tedavi yönlendirilir
- LABA + LAMA
- LABA + LAMA + ICS
- Roflumilast, Azitromisin

Biyolojik tedavi
- Dupilumab (Kronik bronşit)
- Mepolizumab

GOLD Pocket Guide 2026. Figure 3.9. Follow-up pharmacological treatment. Yawn B. J Fam Pract. 2021 Jul;70(6S):S29-S34.

Treat-to- target-Hedefe yönelik tedavi

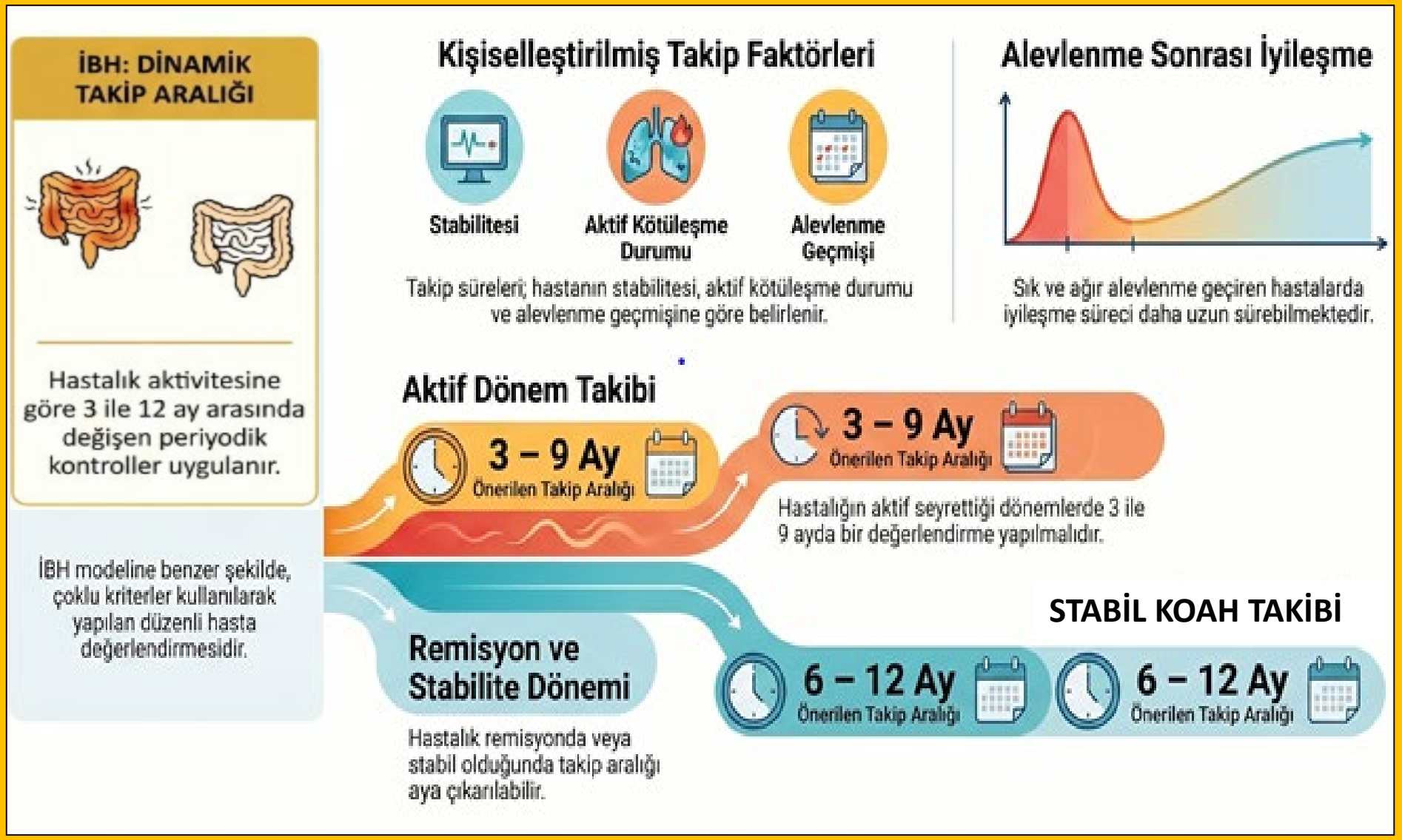
Belirlenmiş ölçülebilir bir hedefe ulaşana kadar tedaviyi düzenleme/eskale etme yaklaşımı

- **Romatoid artrit: Hedef remisyon / düşük hastalık aktivitesi**
- **İBH**
- **Diyabet: Hedef HbA1c düzeyi**
- **Hipertansiyon: Hedef kan basıncı**

KOAH için önerilen hedef: Hastalık stabilitesi

Hastalık kontrolü bozulmaya başladığında ve semptomlar arttığında, henüz akut bir alevlenme gelişmemiş olsa bile, hastanın tedavisini yoğunlaştırabilmesi sağlanmalı

Hastalık stabilitesinin değerlendirilmesinde takip aralıkları ne olmalıdır?



Gonczi L, et al.Disease monitoring strategies in inflammatory bowel diseases: what do we mean by “tight control"? World J Gastroenterol 2019;25:6172–6189


HASTALIK STABİLİTESİ
• 0 alevlenme hedefi
• Sağlık durumu stabil
• Treat-to-target
STABİL KOAH
• Semptomlar stabii
• Alevlenme yok
• Fonksiyon korunur
ALEVLENME
• Semptom artışı
• Risk artışı
• FEV1 kaybı
HASTA-HEKİM İŞ BİRLİĞİ
Ortak hedef
AMAÇ: HASTANIN "KENDİ EN İYİ DURUMUNU- PERSONEL BEST" KORUMAK

Teşekkür ederim...