

Hipertansif Hastada Kardiyak Koruma ve Beta Blokerler

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Beta-Blokerler

Tedavi

- **Hipertansiyon**
- **Koroner arter hastalığı**
- **Aritmiler**
- **Konjestif kalp yetersizliği**
- **Hipertrofik obsrüktif kardiyomiyopati**
- **Dissekan aort anevrizması**

- **Feokromositoma**
- **Hipertiroidi**
- **Migren-profilaksisi**
- **Esansiyel tremor**
- **Anksiyete**
- **Glokom (topikal)**

Braunwald





Expert Opin. Pharmacother. (2010) 11(Suppl.1)

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KILAVUZLAR

- JNC 7 (2003)
- ESC (2003)
- BHS (2004)

- NICE (2006)
- ESC/ESH (2007)
- ESC/ESH (2009)
- CHEP (2010)

Kılavuzların amacı

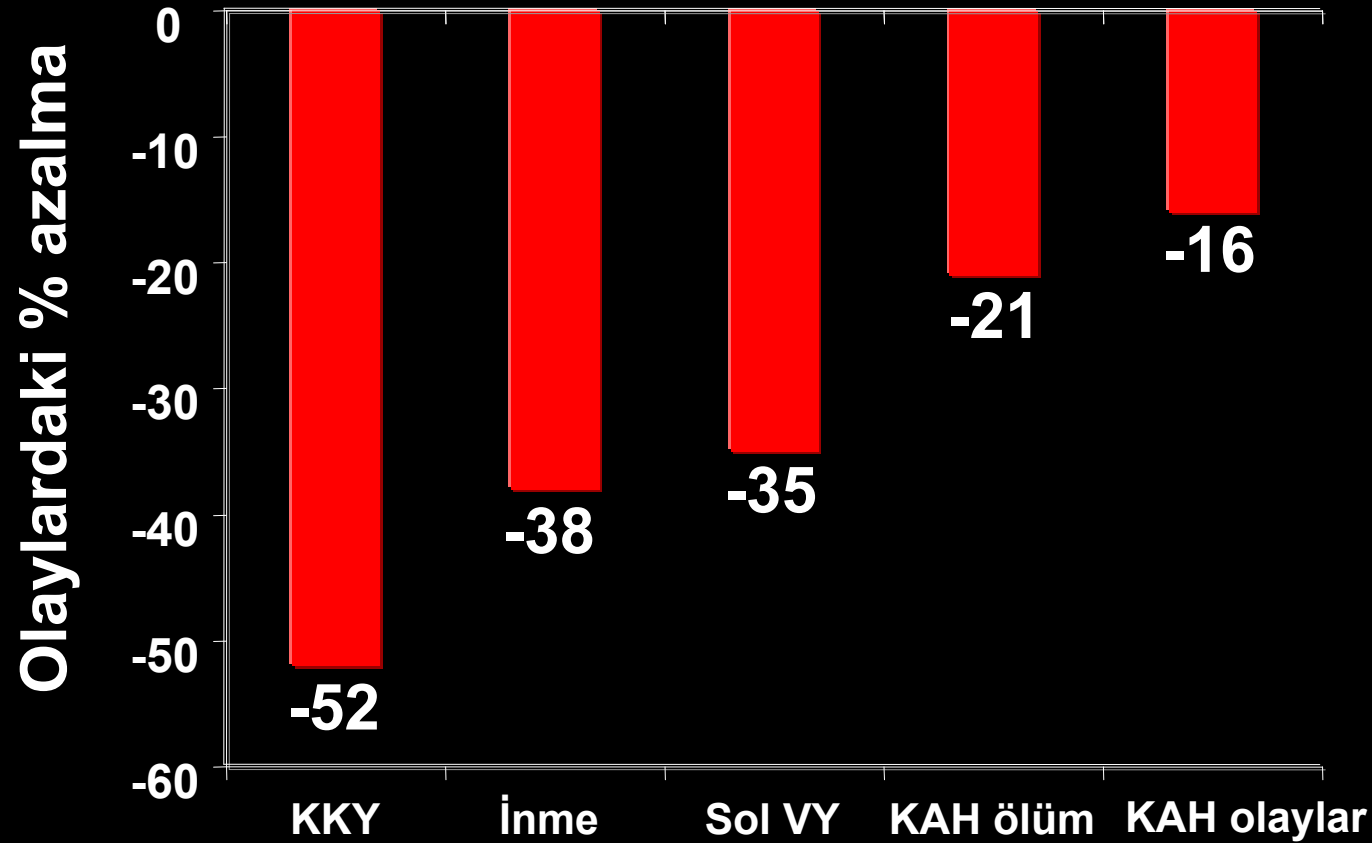
- Bu kılavuzlar Avrupa Hipertansiyon Birliđi ve Avrupa Kardiyoloji Birliđi tarafından atanan bir Uzman Komitesi tarafından hazırlanmış (ESC-ESH) ve Uluslararası Hipertansiyon Birliđi tarafından onaylanmıştır
- Bu kılavuzlar, **mevcut en iyi kanıtlar temel alınarak ve kılavuzların salt buyurucu olmaktan çok** eğitime yönelik bir amaca sahip olması gerektiđi düşünülerek hazırlanmıştır.

Beta Blokerlerin Antihipertansif Etki Mekanizmaları

- **Kalp hızını azaltırlar**
- **Kalp debisini azaltırlar**
- **SSS'den sempatik çıkışı azaltırlar**
- **Böbrekten renin salınımı azaltırlar**

HT Tedavisinin Etkileri

Diüretik ve beta blokerlerle yapılan çalışmaların metaanalizi



JACC 1996, Arc Int Med 1993

Antihipertansif tedavi algoritması

JNC 7

Yaşam tarzı değişiklikleri

Hedeflenen kan basıncına ulaşılamamışsa (<140/90 mmHg ya da diyabetikler veya kronik böbrek hastaları için <130/80 mmHg)

İlk ilaç seçenekleri

Zorunlu endikasyonu olmayan hipertansiyon

Zorunlu endikasyonu olan hipertansiyon

Evre 1 hipertansiyon

(sistolik KB 140-159 mmHg veya diastolik KB 90-99 mmHg)
Çoğunlukla tiazid diüretikleri kullanılır.
ACE inhibitörü, ARB, β bloker, KKB veya kombine tedavi de seçilebilir.

Evre 2 hipertansiyon

(sistolik KB \geq 160 mmHg veya diastolik KB \geq 100 mmHg)
Çoğunlukla iki ilaç kombine edilir. (Çoğunlukla tiazid diüretikleri ve ACE inhibitörü veya ARB veya β bloker veya KKB)

Zorunlu endikasyonlar için ilaçlar

Gerektiğinde diğer antihipertansif ilaçlar (Diüretikler, ACE inhibitörü, ARB, β bloker, KKB)

Hedeflenen kan basıncına ulaşılamamışsa

- Hedeflenen değere ulaşmaya kadar dozajı optimize edin veya ek ilaç kullanın
- Bir hipertansiyon uzmanına danışmayı düşünün

KB: Kan basıncı, ACE: Anjiyotensin dönüştürücü enzim, ARB: Anjiyotensin reseptör blokeri, KKB: Kalsiyum kanal blokeri

JNC 7

Antihipertansif ilaç sınıflarının zorunlu endikasyonlarının klinik çalışmalara ve kılavuzlara göre sınıflanması

Önerilen ilaçlar

Hastalık	Diüretik	β bloker	ACEi	ARB	KKB	Aldosteron antagonisti	Klinik çalışmalar
Kalp yetersizliği	●	●	●	●		●	ACC/AHA Kalp Yetersizliği Kılavuzu, MERIT-HF, COPERNICUS, CIBIS, SOLVD, AIRE, TRACE, ValHEFT, RALES
Mİ sonrası		●	●			●	ACC/AHA post-MI kılavuzu, BHAT, SAVE, CAPRICORN, EPHEBUS
Yüksek koroner hastalık riski	●	●	●		●		ALLHAT, HOPE, ANBP2, LIFE, CONVINCENCE
Diyabet	●	●	●	●	●		NKF-ADA Kılavuzu, UKPDS, ALLHAT
Kronik böbrek hastalığı			●	●			NKF Kılavuzu, Kaptopril Çalışması, RENAAL, IDNT, REIN, AASK
Rekürren inmeden korunma	●		●				PROGRESS

Antihipertansif İlaçlar İçin Endikasyon ve Kontraendikasyonlar

Sınıf	Endikasyonlar	Kontraendikasyon	
		Zorunlu	Rölatif
Beta Blokerler	Anjina pektoris Post-miyokardiyal enfarktüs Konjestif kalp yetmezliği (titre edilir) Gebelik Taşiaritmiler	Astma Kronik obstrüktif akciğer hastalığı A-V blok (2-3)	Periferal vasküler hastalık Glukoz intoleransı Atletler ve fiziksel aktif hastalar

İngiltere Hipertansiyon Cemiyeti Kan Basıncını Düşürücü İlaç Kombinasyonu Önerileri-2004

	Genç (<55 yaş) ve siyahi değil	Yaşlı (>55 yaş) veya siyahi
Adım 1	A (veya B*)	C veya D
Adım 2	A (veya B*)	C veya D
Adım 3	A (veya B*)	
Adım 4 Dirençli Hipertansiyon	Ekle: alfa-bloker veya spironolakton veya diğer diüretikler	

A: ACE inhibitörü veya anjiyotensin reseptör blokeri

B: Beta bloker

C: Kalsiyum kanal blokeri

D: Diüretik (tiyazid)

Atenolol in hypertension: is it a wise choice?

Bo Carlberg, Ola Samuelsson, Lars Hjalmar Lindholm

Summary

Background Atenolol is one of the most widely used β blockers clinically, and has often been used as a reference drug in randomised controlled trials of hypertension. However, questions have been raised about atenolol as the best reference drug for comparisons with other antihypertensives. Thus, our aim was to systematically review the effect of atenolol on cardiovascular morbidity and mortality in hypertensive patients.

Methods Reports were identified through searches of *The Cochrane Library*, MEDLINE, relevant textbooks, and by personal communication with established researchers in hypertension. Randomised controlled trials that assessed the effect of atenolol on cardiovascular morbidity or mortality in patients with primary hypertension were included.

Findings We identified four studies that compared atenolol with placebo or no treatment, and five that compared atenolol with other antihypertensive drugs. Despite major differences in blood pressure lowering, there were no outcome differences between atenolol and placebo in the four studies, comprising 6825 patients, who were followed up for a mean of 4.6 years on all-cause mortality (relative risk 1.01 [95% CI 0.89–1.15]), cardiovascular mortality (0.99 [0.83–1.18]), or myocardial infarction (0.99 [0.83–1.19]). The risk of stroke, however, tended to be lower in the atenolol than in the placebo group (0.85 [0.72–1.01]). When atenolol was compared with other antihypertensives, there were no major differences in blood pressure lowering between the treatment arms. Our meta-analysis showed a significantly higher mortality (1.13 [1.02–1.25]) with atenolol treatment than with other active treatment, in the five studies comprising 17 671 patients who were followed up for a mean of 4.6 years. Moreover, cardiovascular mortality also tended to be higher with atenolol treatment than with other antihypertensive treatment. Stroke was also more frequent with atenolol treatment.

Interpretation Our results cast doubts on atenolol as a suitable drug for hypertensive patients. Moreover, they challenge the use of atenolol as a reference drug in outcome trials in hypertension.

- 4 çalışma, 6825 hasta atenolol vs plasebo
- 5 çalışma, 17 671 hasta atenolol vs diğer antihipertansifler

Carlberg B, Samuelsson O, Lindholm LH. *Lancet* 2004; 364: 1684–89

Atenolol in hypertension: is it a wise choice?

Hence, based on the results of our meta-analyses and on the effects of atenolol in other cardiovascular disorders, **we have doubts about the suitability of atenolol** as a first-line antihypertensive drug and as a reference drug in outcome trials of hypertension.

Carlberg B, Samuelsson O, Lindholm LH.
Lancet 2004; 364: 1684–89

Atenolol in hypertension: is it a wise choice?

We **did not analyse other blockers**. The effect of other blockers in cardiac failure, and after myocardial infarction, is well-documented. However, in large hypertension trials, few researchers have specifically studied the outcome of different blockers. **Instead, beta blockers were most often considered as a group**, which is also the case in hypertension guidelines.

Bo Carlberg, Ola Samuelsson, Lars Hjalmar Lindholm
Lancet 2004; 364: 1684–89

Should β blockers remain first choice in the treatment of primary hypertension? A meta-analysis

Lars Hjalmar Lindholm, Bo Carlberg, Ola Samuelsson

Summary

Background: β blockers have been used widely in the treatment of hypertension and are recommended as first-line drugs in hypertension guidelines. However, a preliminary analysis has shown that atenolol is not very effective in hypertension. We aim to substantially enlarge the data on atenolol and analyse the effect of different β blockers.

Methods: The Cochrane Library and PubMed were searched for β blocker treatment in patients with primary hypertension. Data were then entered into the Cochrane Collaboration Review Manager package and were summarised in meta-analyses. 13 randomised controlled trials (n=105 951) were included in a meta-analysis comparing treatment with β blockers with other antihypertensive drugs. Seven studies (n=27 433) were included in a comparison of β blockers and placebo or no treatment.

Findings: The relative risk of stroke was 16% higher for β blockers (95% CI 4–30%) than for other drugs. There was no difference for myocardial infarction. When the effect of β blockers was compared with that of placebo or no treatment, the relative risk of stroke was reduced by 19% for all β blockers (7–29%), about half that expected from previous hypertension trials. There was no difference for myocardial infarction or mortality.

Interpretation: In comparison with other antihypertensive drugs, the effect of β blockers is less than optimum, with a raised risk of stroke. Hence, we believe that β blockers should not remain first choice in the treatment of primary hypertension and should not be used as reference drugs in future randomised controlled trials of hypertension.

Lancet 2005; 366: 1545–53

Should beta blockers remain first choice in the treatment of primary hypertension? A meta-analysis

Atenolol vs Diğer Antihipertansifler

Sonlanım	Atenolol ile RR	95% GA
İnme	1.26	1.15–1.38
MI	1.05	0.91–1.21
Tüm ölümler	1.08	1.02–1.14

Lindholm LH, et al. Lancet 2005; 366: 1545–53

Should beta blockers remain first choice in the treatment of primary hypertension? A meta-analysis

Non-atenolol Beta Blokörler vs Diğer Antihipertansifler

Sonlanım	βB ile Relatif risk	95% GA
İnme	1.20	0.30–4.71
MI	0.86	0.67–1.11
Tüm Ölümler	0.89	0.70–1.12

Lindholm LH, et al. Lancet 2005; 366: 1545–53

Should beta blockers remain first choice in the treatment of primary hypertension? A meta-analysis

Beta Blokörler ile Diğer Antihipertansiflerin Karşılaştırılması :Meta-analiz

Sonlanım	β B ile Relatif risk (vs plasebo)	95% GA
İnme	1.16	1.04–1.30
MI	1.02	0.93–1.12
Tüm ölümler	1.03	0.99–1.08

Lindholm LH, et al. Lancet 2005; 366: 1545–53

Should beta blockers remain first choice in the treatment of primary hypertension? A meta-analysis

Beta Blokör + Diüretik vs Diğer Antihipertansifler

Sonlanım	Beta Bloker ile RR	95% GA
İnme	1.09	0.98–1.21
MI	1.00	0.81–1.22
Tüm ölümler	0.97	0.89–1.05

Lindholm LH, et al. Lancet 2005; 366: 1545–53

Yorum:

- **Diğer antihipertansiflerle karşılaştırıldığında β blokörlerin etkisi beklenenden azdır**
- **İnme riskinde artışa neden oluyorlar**
- **Bize göre β blokörler primer hipertansiyon tedavisinde ilk tercih olmamalıdır**
- **Gelecekteki randomize çalışmalarda referans ilaç olarak kullanılmamalıdır**

REVIEW

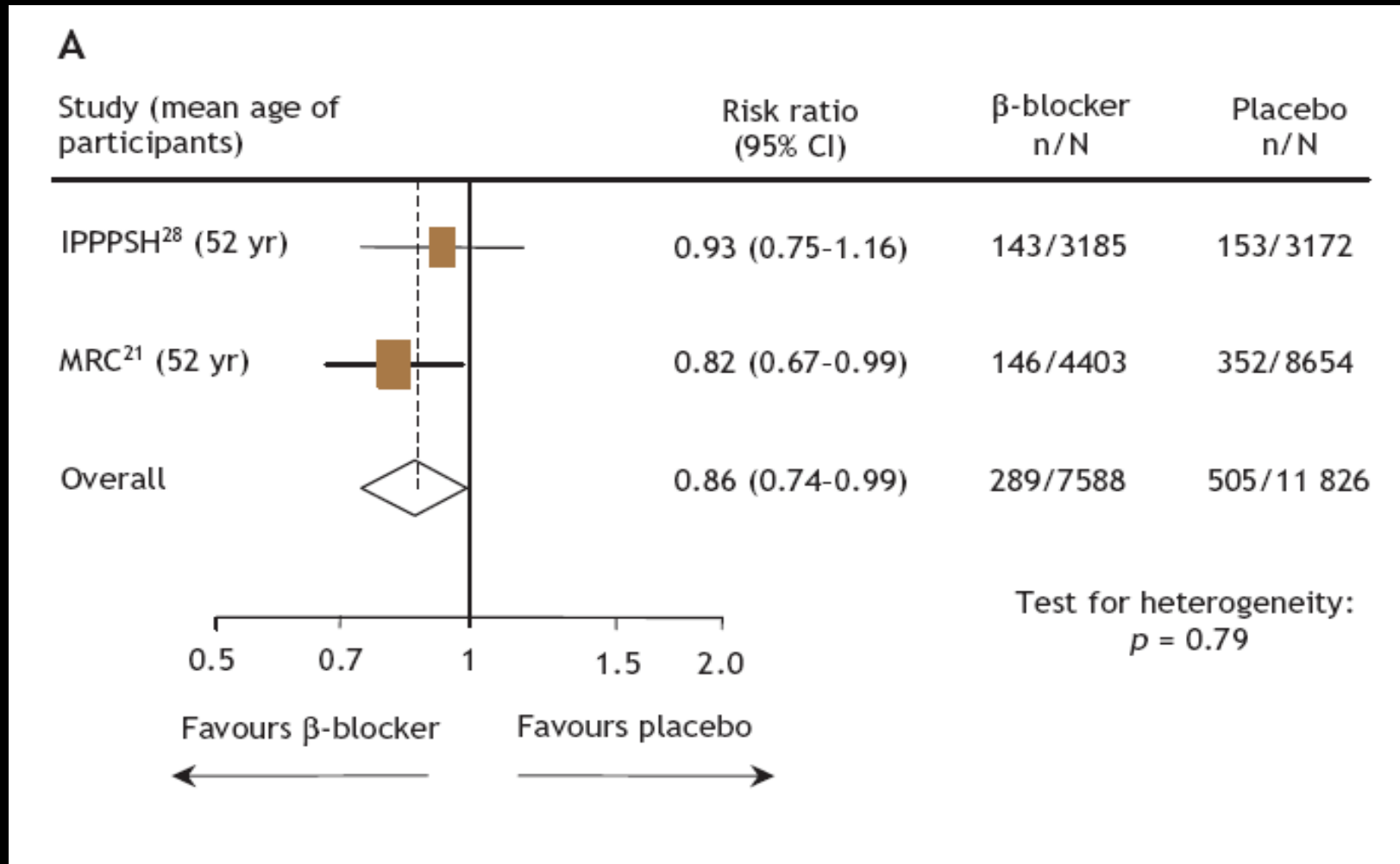
Re-examining the efficacy of β -blockers for the treatment of hypertension: a meta-analysis

Nadia Khan, Finlay A. McAlister

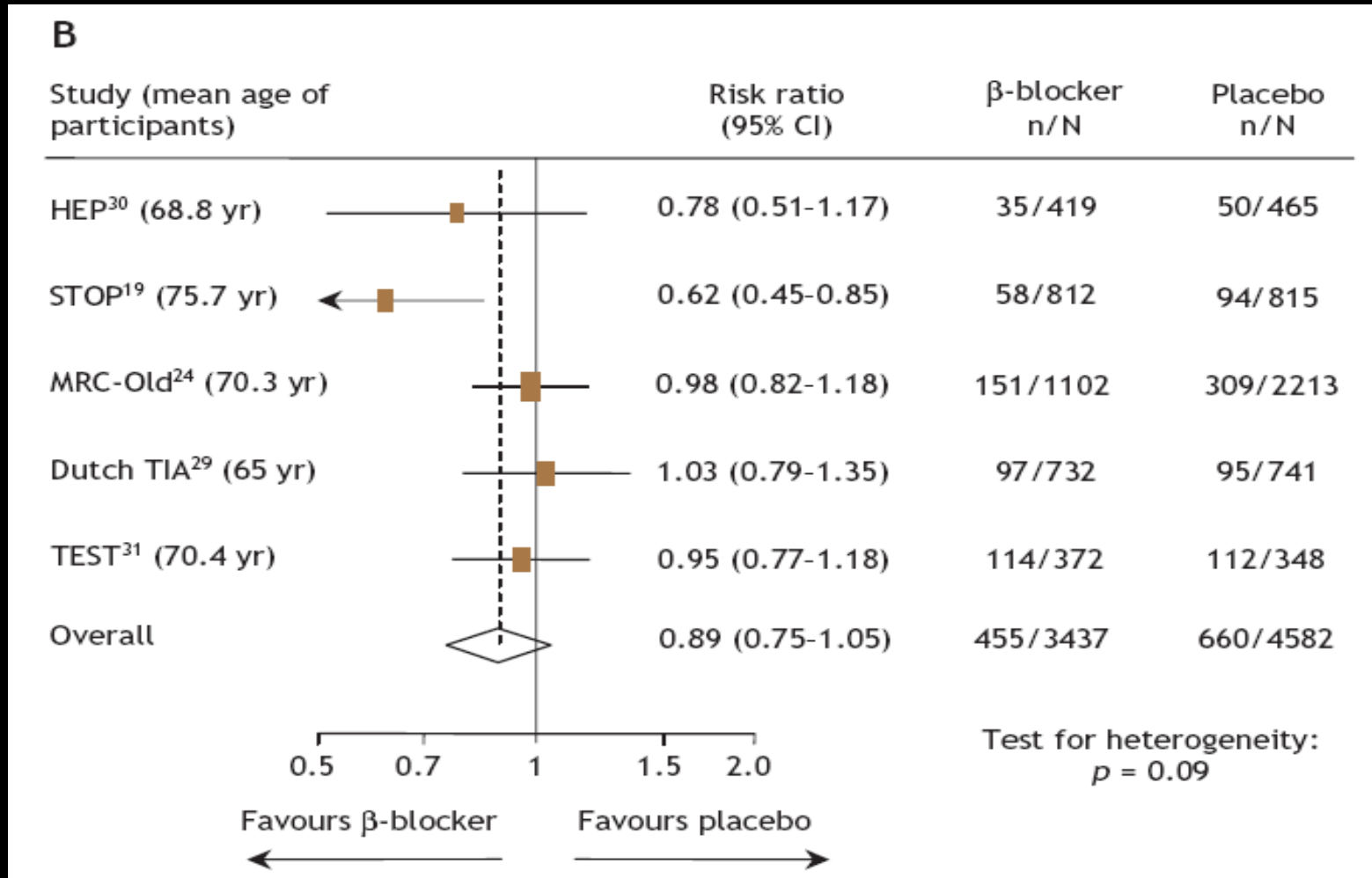
145 811 hasta , 21 çalışma

Canadian Medical Association Journal
(CMAJ) 2006;174(12):1737-42

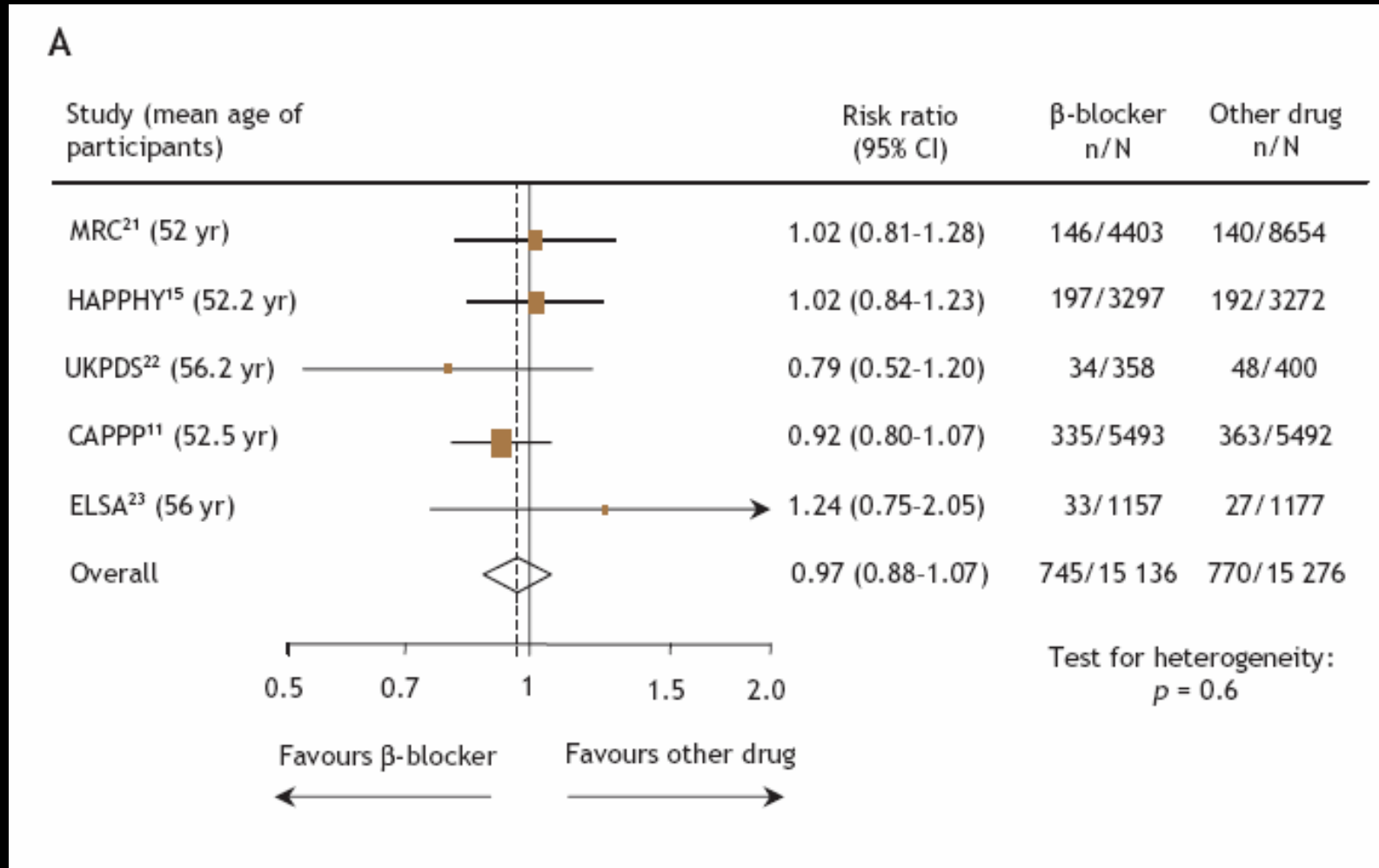
Birleşik sonuçları noktaları için (ölüm, inme, MI) risk oranları (<60 yaş)



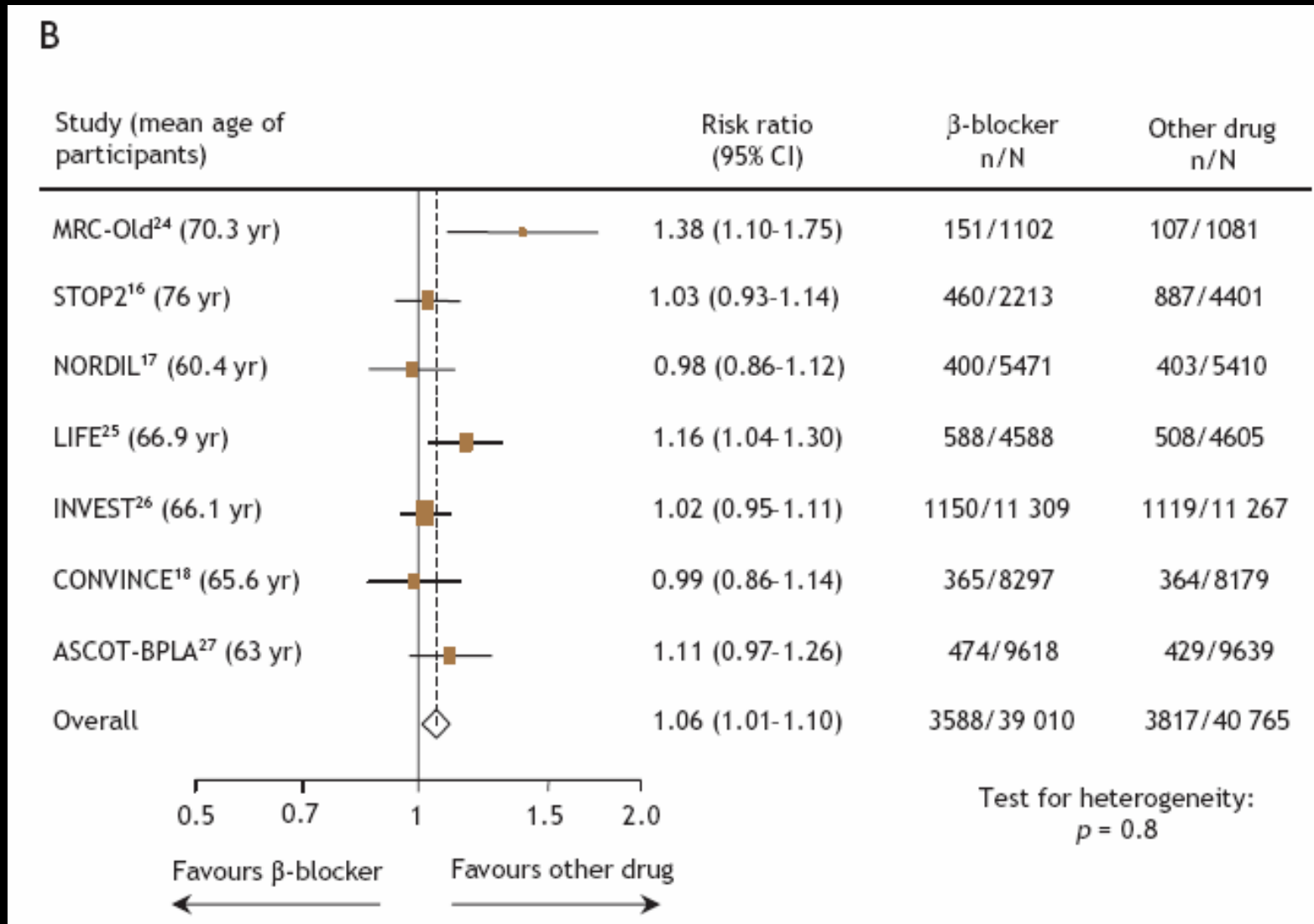
Birleşik sonuçlar için (ölüm, inme, MI) risk oranları (> 60 yaş)



Birleşik sonuçlar için (ölüm, inme, MI) risk oranları (<60 yaş)



Birleşik sonuçları noktaları için (ölüm, inme, MI) risk oranları (> 60 yaş)



Yorum

- **β blokörler zorunlu endikasyon olmadıkça ileri yaştaki hastalarda ilk tercih olarak kullanılmamalıdır.Ancak;**
- **Genç hastalarda kardiyovaküler morbidite ve mortaliteyi önemli ölçüde azaltırlar**

Khan N, A. McAlister FA . CMAJ 2006;174(12):1737-42

Controversies in Cardiology 2

Controversies in hypertension

Norman M Kaplan, Lionel H Opie

Lancet 2006; 367: 168–76

Controversies in hypertension

- Two additional facts were recorded: first, the commonly used blocker, **atenolol**, **provided no cardioprotection**; second, diuretic-based regimens with or without blocker provoked more new cases of diabetes than comparator regimens

Norman M Kaplan, Lionel H Opie Lancet 2006; 367: 168–76

Controversies in hypertension

But are all blockers equally ineffective? Important reservations must be made.

First, the failure of atenolol-based therapy might be caused by the absence of 24-h efficacy when used once a day.

Norman M Kaplan, Lionel H Opie Lancet 2006; 367: 168–76

Controversies in hypertension

Second, other blockers might give different results. However, a meta-analysis of blockers as a group showed that the risk of stroke was 16% higher for blockers than for other drugs, and that by comparison with placebo or no therapy, blockers reduced stroke by about half of that predicted from previous studies. **More modern blockers such as carvedilol and nebivolol could be safer than others**, with less glucose intolerance, but few major outcome studies in hypertension have investigated this possibility.

Norman M Kaplan, Lionel H Opie Lancet 2006; 367: 168–76

YEAR IN CARDIOLOGY SERIES

The Year in Hypertension

Bryan Williams, MD, FRCP, FAHA

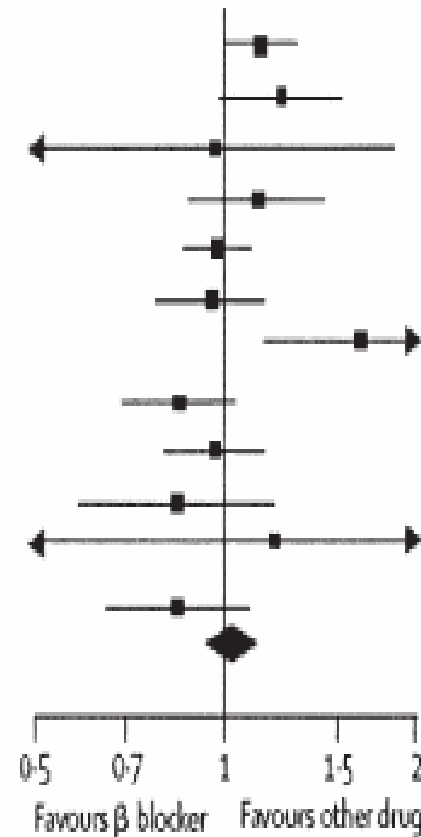
Leicester, United Kingdom

JACC Vol. 48, No. 8, October 17, 2006:1698–711

Myocardial Infarction

	β blocker n/N	Other drug n/N	RR 95% CI	RR 95% CI
ASCOT-BPLA	444/9618	390/9639		1.14 (1.00-1.30)
CONVINCE	166/8297	133/8179		1.23 (0.98-1.54)
ELSA	17/1157	18/1177		0.96 (0.50-1.85)
HAPPHY	132/3297	116/3272		1.13 (0.88-1.44)
INVEST	441/11309	452/11267		0.97 (0.85-1.11)
LIFE	118/4588	198/1081		0.95 (0.78-1.16)
MRC Old	80/1102	48/4605		1.63 (1.15-2.32)
NORDIL	157/5471	183/5410		0.85 (0.69-1.05)
STOP-2	154/2213	318/4401		0.96 (0.80-1.16)
UKPDS	46/358	61/400		0.84 (0.59-1.20)
Yurenev	7/150	6/154		1.20 (0.41-3.48)
MRC	103/4403	119/4297		0.84 (0.65-1.10)
Total events	1935/51963	2042/53882		1.02 (0.93-1.12)

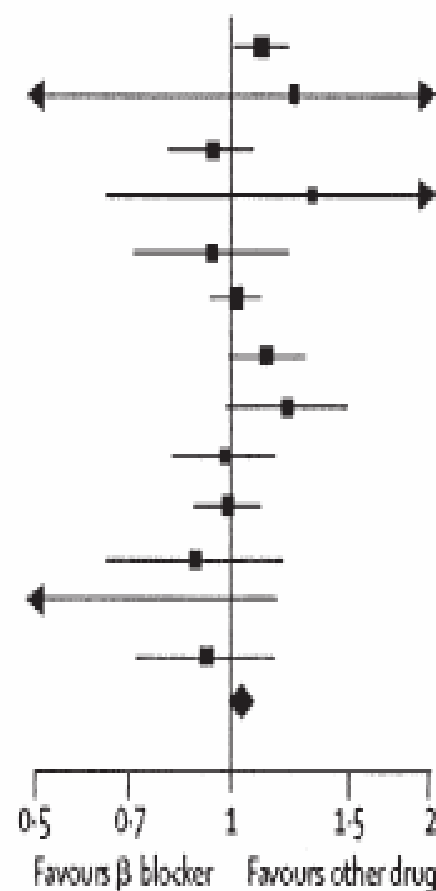
Test for heterogeneity: $\chi^2=20.67$ ($p=0.04$)



Mortality of all causes

	β blocker n/N	Other drug n/N	RR 95% CI	RR 95% CI
ASCOT-BPLA	820/9618	738/9639		1.11 (1.01-1.22)
Berglund	5/53	4/53		1.25 (0.36-4.40)
CONVINCE	319/8297	337/8179		0.93 (0.80-1.08)
ELSA	17/1157	13/1177		1.33 (0.65-2.73)
HAPPY	96/3297	101/3272		0.94 (0.72-1.24)
INVEST	893/11309	873/11267		1.02 (0.93-1.11)
LIFE	431/4588	383/1081		1.13 (0.99-1.29)
MRC Old	167/1102	134/1081		1.22 (0.99-1.51)
NORDIL	228/5471	231/5410		0.98 (0.82-1.17)
STOP-2	369/2213	742/4401		0.99 (0.88-1.11)
UKPDS	59/358	75/400		0.88 (0.64-1.20)
Yurenev	1/150	7/154		0.15 (0.02-1.18)
MRC	120/4403	128/4297		0.91 (0.72-1.17)
Total events	3525/52016	3766/53935		1.03 (0.99-1.08)

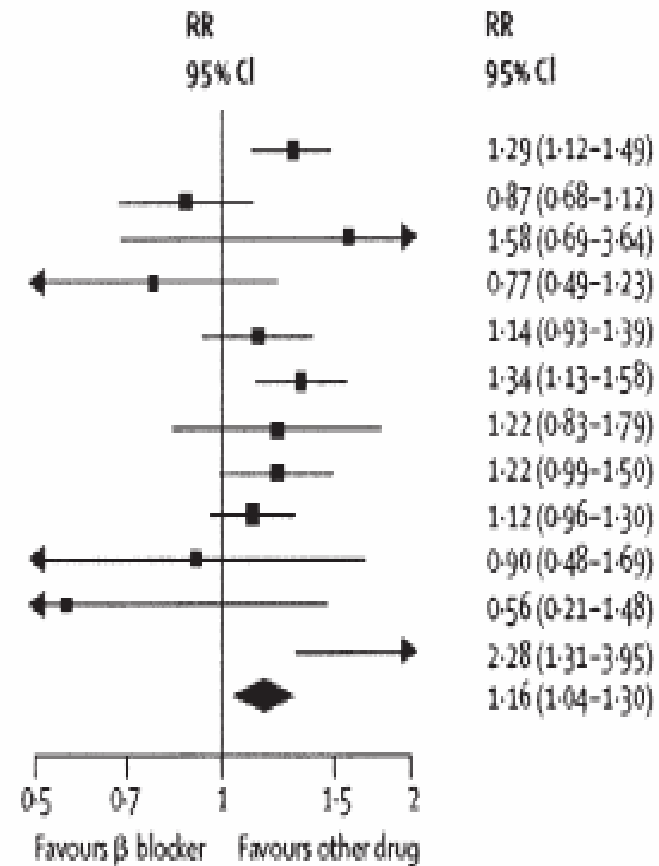
Test for heterogeneity: $\chi^2=15.73$ ($p=0.20$)



Stroke

	β blocker n/N	Other drug n/N	RR 95% CI	RR 95% CI
ASCOT-BPLA	422/9618	327/9639		1.29 (1.12-1.49)
CONVINCE	118/8297	133/8179		0.87 (0.68-1.12)
ELSA	14/1157	9/1177		1.58 (0.69-3.64)
HAPPHY	32/3297	41/3272		0.77 (0.49-1.23)
INVEST	201/11309	176/11267		1.14 (0.93-1.39)
LIFE	309/4588	232/4605		1.34 (1.13-1.58)
MRC Old	56/1102	45/1081		1.22 (0.83-1.79)
NORDIL	196/5471	159/5410		1.22 (0.99-1.50)
STOP-2	237/2213	422/4401		1.12 (0.96-1.30)
UKPDS	17/358	21/400		0.90 (0.48-1.69)
Yurenev	6/150	11/154		0.56 (0.21-1.48)
MRC	42/4403	18/4297		2.28 (1.31-3.95)
Total events	1650/51963	1594/53882		1.16 (1.04-1.30)

Test for heterogeneity: $\chi^2=22.39$ ($p=0.02$)

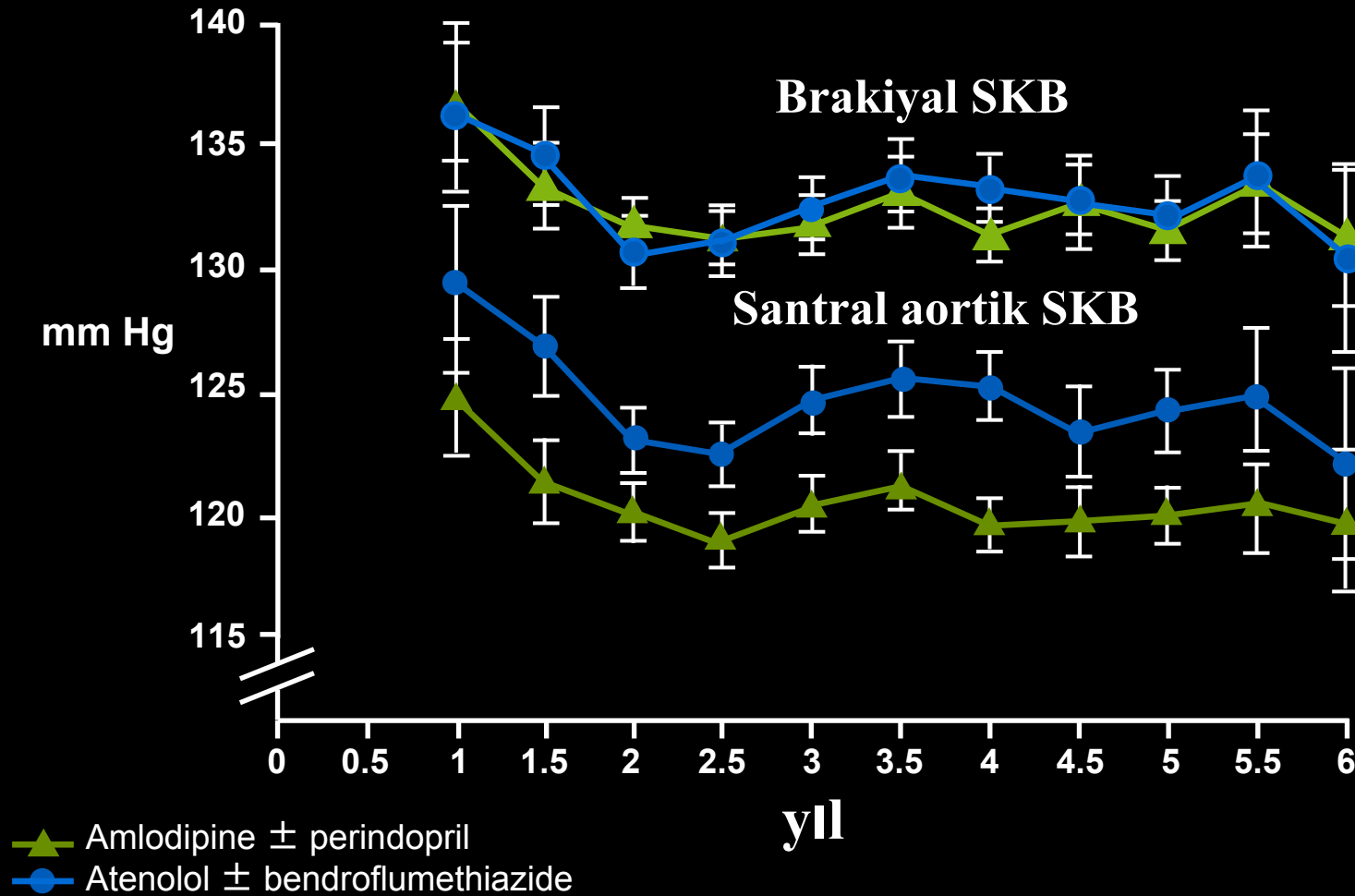


YEAR IN CARDIOLOGY SERIES

The Year in Hypertension

- Özellikle değişik farmakolojik özellikleri olan diğer beta blokörler ile bu sonuçların nasıl olacağı belli değildir

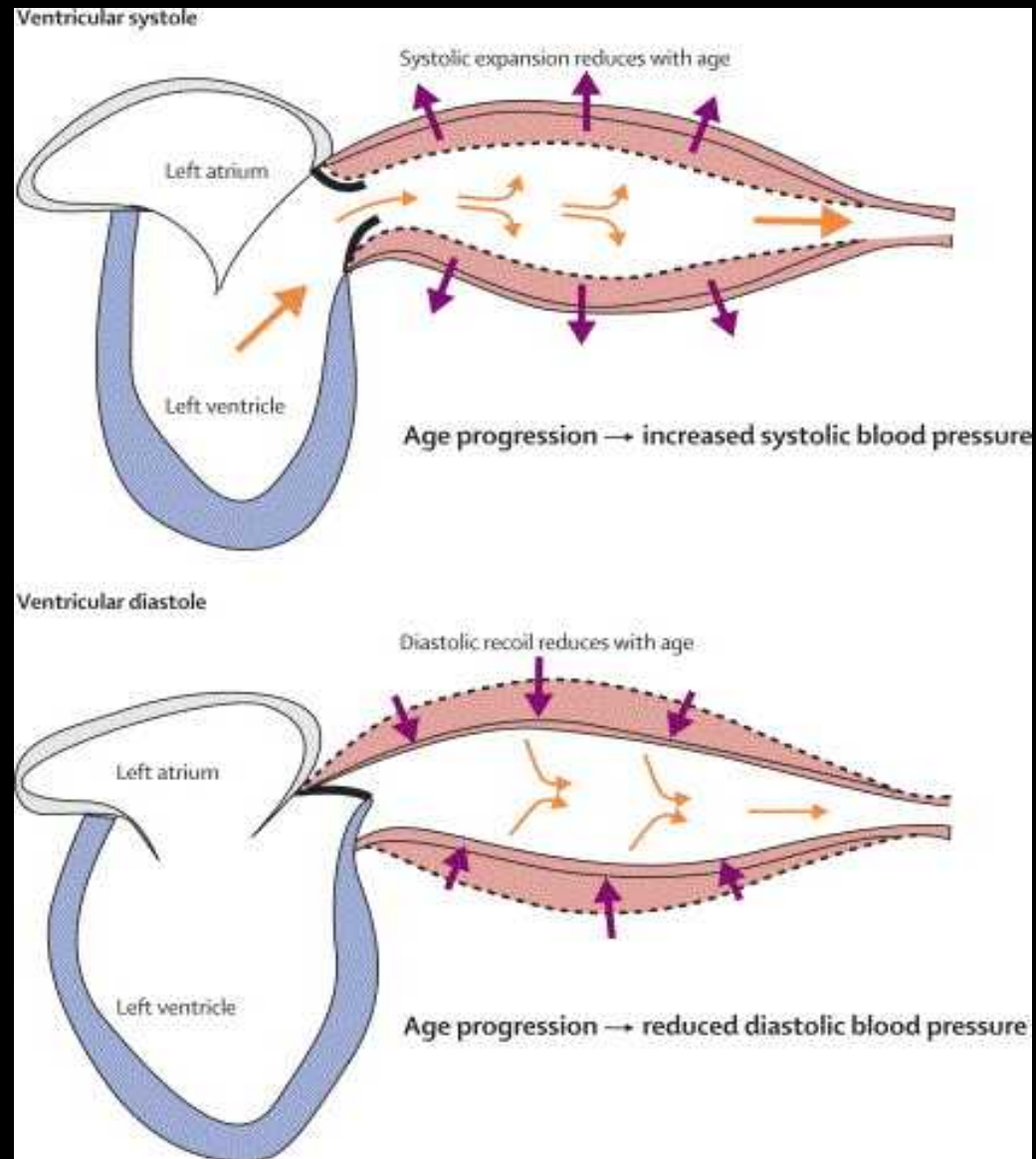
CAFE: Santral aortik basınç



CAFE Investigators. *Circulation*. 2006;113:1213-25.

CAFE: Özet

- Amlodipine \pm perindopril ,atenolol \pm bendroflumetiyazid ile karşılaştırıldığında ; brakiyal KB'nda benzer etkiye rağmen santral aortik KB'ında ve hemodinamide önemli ve sürekli farklılıklar vardır
- **Santral aortik sistolik KB ve and santral aortik nabız basıncındaki farklılıklar ASCOT-BPLA 'da görülen farklı klinik sonuçları açıklayabilir**
- **Santral aortik nabız basıncı KV sonuçlarının bir belirleyicisi olabilir**



Norman M Kaplan, Lionel H Opie Lancet 2006; 367: 168–76

BÜTÜN BETA BLOKÖRLER AYNI MI?

Expert consensus document on beta adrenergic receptor blockers

β -blocker	ISA	Lipid solubility	Peripheral vasodilation	i.v.	Average daily oral dose
<i>I. Non-selective ($\beta_1 + \beta_2$) adrenergic antagonists</i>					
Carteolol	+	Low			2.5–20 mg once/twice daily
Nadolol	0	Low			40–320 mg once daily
Penbutolol	+	Moderate			20–80 mg once/twice daily
Pindolol	++	High			10–40 mg twice daily
Propranolol	0	High		+	40–180 mg twice daily
Sotalol	0	Low		+	
Timolol	0	High			5–40 mg twice daily
<i>II. Selective β_1-adrenergic antagonists</i>					
Acebutolol	+	Moderate			200–800 mg once/twice daily
Atenolol	0	Low		+	25–100 mg once daily
Betaxolol	0	Moderate			5–20 mg once daily
Bisoprolol	0	Moderate			2.5–10 mg once daily
Celiprolol	+	Moderate	+		200–600 mg once daily
Esmolol	0	Low		+	Only i.v.
Metoprolol	0	High		+	50–100 mg once/twice daily
Nevibolol	0		+		2.5–5 mg once daily
<i>III. α_1- and β-adrenergic antagonists</i>					
Bucindolol	+	Moderate	+		25–100 mg twice daily
Carvedilol*	0	Moderate	+		3.125–50 mg twice daily
Labetalol	+	Low	+		200–800 mg twice daily

European Heart Journal (2004) 25, 1341–1362

82429 : Different pattern of peripheral versus central blood pressure in hypertensive patients treated with beta-blockers either with or without vasodilating properties

Üç grup hipertansif hasta :

- ACEi veya ARB / diüretik (grup I, n=102)
- Karvedilol veya nevigolol / diüretik (grup II, n=73)
- Atenolol / diüretik (grup III, n=84)

82429 : Different pattern of peripheral versus central blood pressure in hypertensive patients treated with beta-blockers either with or without vasodilating properties

	Grup I	Grup II	Grup III
Periferal KB (mm Hg)	145/84	145/87	145/87
Santral KB (mm Hg)	131/84	134/86	139/86
Augmentasyon indeksi	21 (9) %	25 (11) %	34 (9) %

ANOVA

p<0.01, Group I v II, I v III and II v III.

Augmentation indeksi

p<0.03 tümü arasında

82429 : Different pattern of peripheral versus central blood pressure in hypertensive patients treated with beta-blockers either with or without vasodilating properties

- Atenololün santral KB'ını düşürmedeki dezavantajı vazodilatör etkileri olan beta blokörlerde aynı oranda görülmemektedir.

**National Institute for Health and
Clinical Excellence (NICE)
Issue date: June 2006**

www.nice.org.uk

İngiltere Hipertansiyon Cemiyeti Kan Basıncını Düşürücü İlaç Kombinasyonu Önerileri

	Genç (<55 yaş) ve siyahi değil	Yaşlı (>55 yaş) veya siyahi
Adım 1	A (veya B*)	C veya D
Adım 2	A (veya B*)	C veya D
Adım 3	A (veya B*)	
Adım 4 Dirençli Hipertansiyon	Ekle: alfa-bloker veya spironolakton veya diğer diüretikler	

A: ACE inhibitörü veya anjiyotensin reseptör blokeri

B: Beta bloker

C: Kalsiyum kanal blokeri

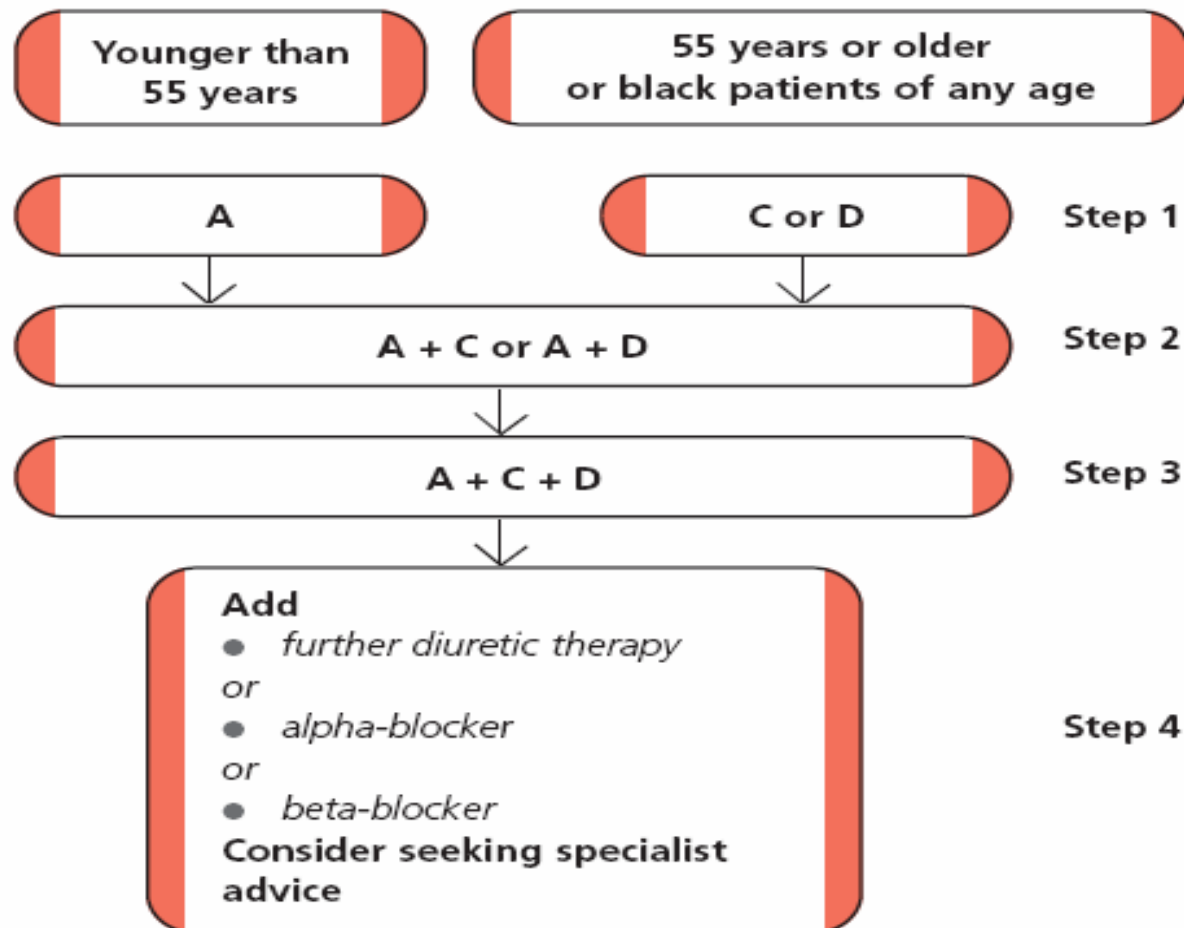
D: Diüretik (tiyazid)

*B ve D kombinasyonu diğer tedavilere göre yeni DM başlama riskini artırır.

Management of hypertension in adults in primary care-June 2006

Abbreviations:

A = ACE inhibitor
(consider angiotensin-II receptor antagonist if ACE intolerant)
C = calcium-channel blocker
D = thiazide-type diuretic



Beta-blokerler

- Beta-blokerler artık hipertansiyonun başlangıç tedavisinde tercih edilmemelidir
- Ancak genç hastalarda özellikle düşünülmelidir:
 - Doğurganlık çağındaki kadınlarda
 - Sempatik aktivasyon belirtileri olanlarda
 - ACEi ve ARB kullanamayan hastalarda

Özet: Zorlayıcı Endikasyon Yokluğunda, Sistolik-Diyastolik Hipertansiyonu Olan Hastalardaki Tedavi Algoritması

HEDEF <140/90 mmHg

YTD

Tiyazid

ACE-I

ARB

Uzun-etkili
DHP-KKB

Beta-
bloker*



DÜŞÜN

Uyum problemi?
Sekonder HTN?
Etkileşen ilaçlar veya
yaşam tarzı?
Beyaz önlük etkisi?

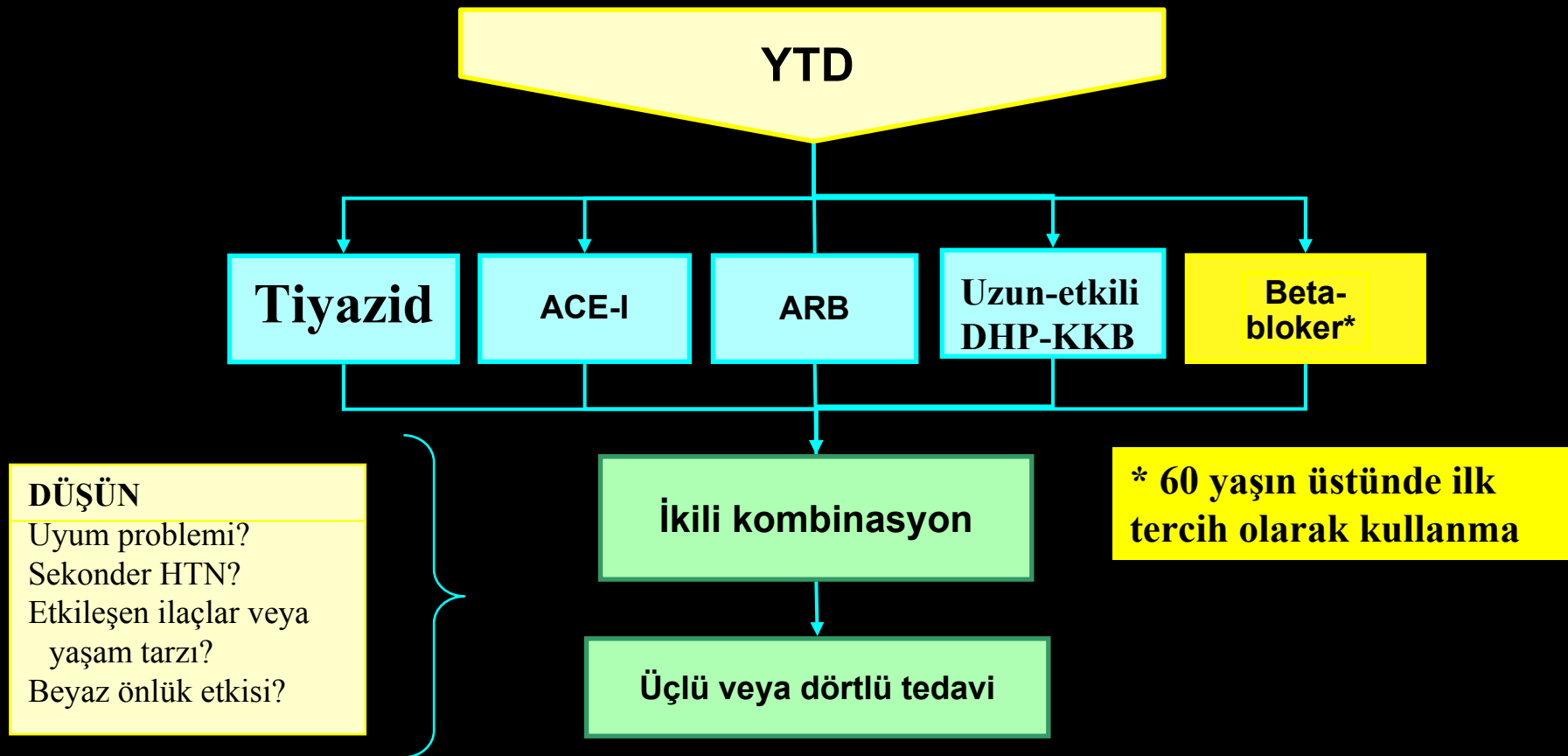
İkili kombinasyon

* 60 yaşın üstünde ilk
tercih olarak kullanma

Üçlü veya dördü tedavi

Özet: Zorlayıcı Endikasyon Yokluğunda, Sistolik-Diyastolik Hipertansiyonu Olan Hastalardaki Tedavi Algoritması

HEDEF <140/90 mmHg



Guidelines

2007 Guidelines for the Management of Arterial Hypertension

The Task Force for the Management of Arterial Hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC)

ESC ve ESH Kılavuzları



Arteriyel Hipertansiyon Tedavisi 2007 Kılavuzu

Avrupa Hipertansiyon Derneği (ESH) ve Avrupa Kardiyoloji Derneği (ESC)
Arteriyel Hipertansiyon Tedavisi Görev Grubu

Journal of Hypertension 2007, Vol 25 No 6

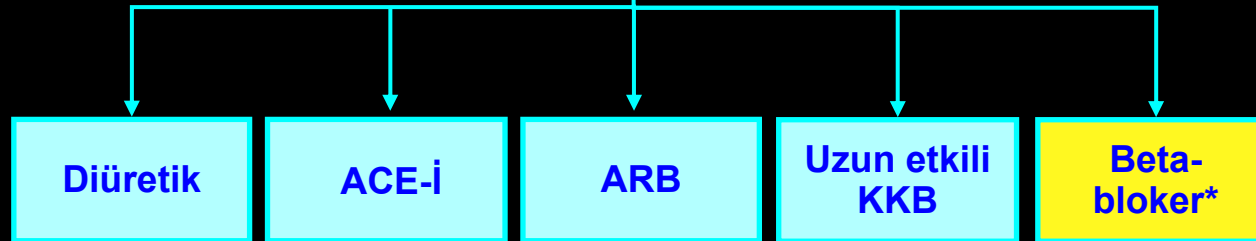
Hipertansiyon Tedavisine Yaklaşım

HEDEF

<140/90 mmHg

Yaşam tarzının düzenlenmesi

Eşlik Eden Özel Bir Endikasyon Yoksa



Monoterapi ya da kombinasyon şeklinde

***BB (özellikle tiazid diüretikleriyle birlikte) metabolik sendromu olan ya da diyabet gelişme riski yüksek olan hastalarda kullanılmamalı**



Arteriyel Hipertansiyon Tedavisi 2007 Kılavuzu

Avrupa Hipertansiyon Derneği (ESH) ve Avrupa Kardiyoloji Derneği (ESC)
Arteriyel Hipertansiyon Tedavisi Görev Grubu

Bununla birlikte, karvedilol ve nebivolol gibi vazodilatör beta-blokerler için bu geçerli olmayabilir; bu ilaçların dismetabolik etkileri daha azdır veya yoktur ve klasik beta-blokerlere göre yeni ortaya çıkan diyabet insidansı azalmıştır

BMJ

Effects of different regimens to lower blood pressure on major cardiovascular events in older and younger adults: meta-analysis of randomised trials

Blood Pressure Lowering Treatment Trialists' Collaboration

BMJ 2008;336;1121-1123; originally published online 14 May 2008;
doi:10.1136/bmj.39548.738368.BE

Blood Pressure Lowering Treatment Trialists' Collaboration

ABSTRACT

Objective To quantify the relative risk reductions achieved with different regimens to lower blood pressure in younger and older adults.

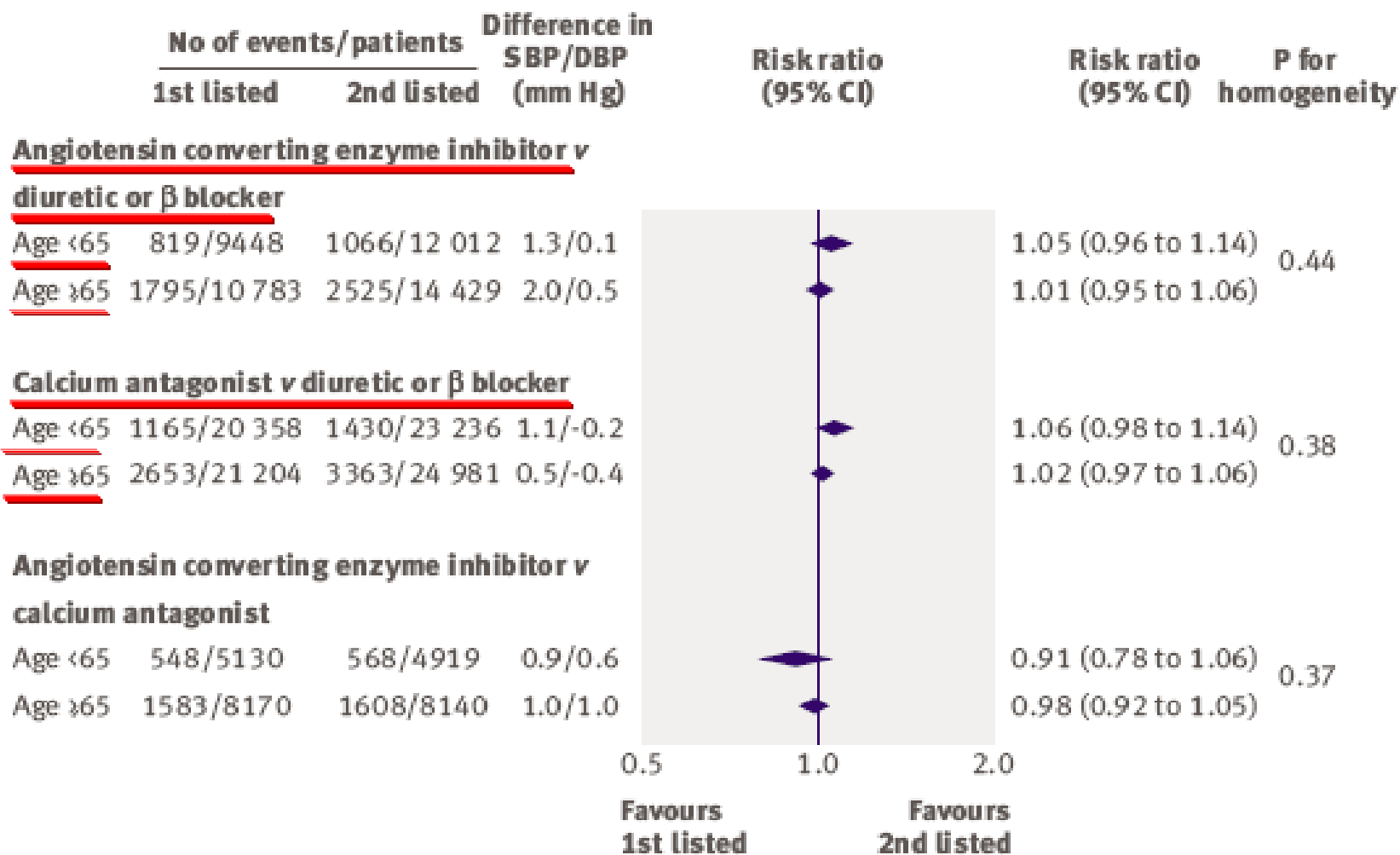
Design Meta-analyses and meta-regression analyses used to compare the effects on the primary outcome between two age groups (<65 v ≥65 years). Evidence for an interaction between age and the effects of treatment sought by fitting age as a continuous variable and estimating overall effects across trials.

Main outcome measures Primary outcome: total major cardiovascular events.

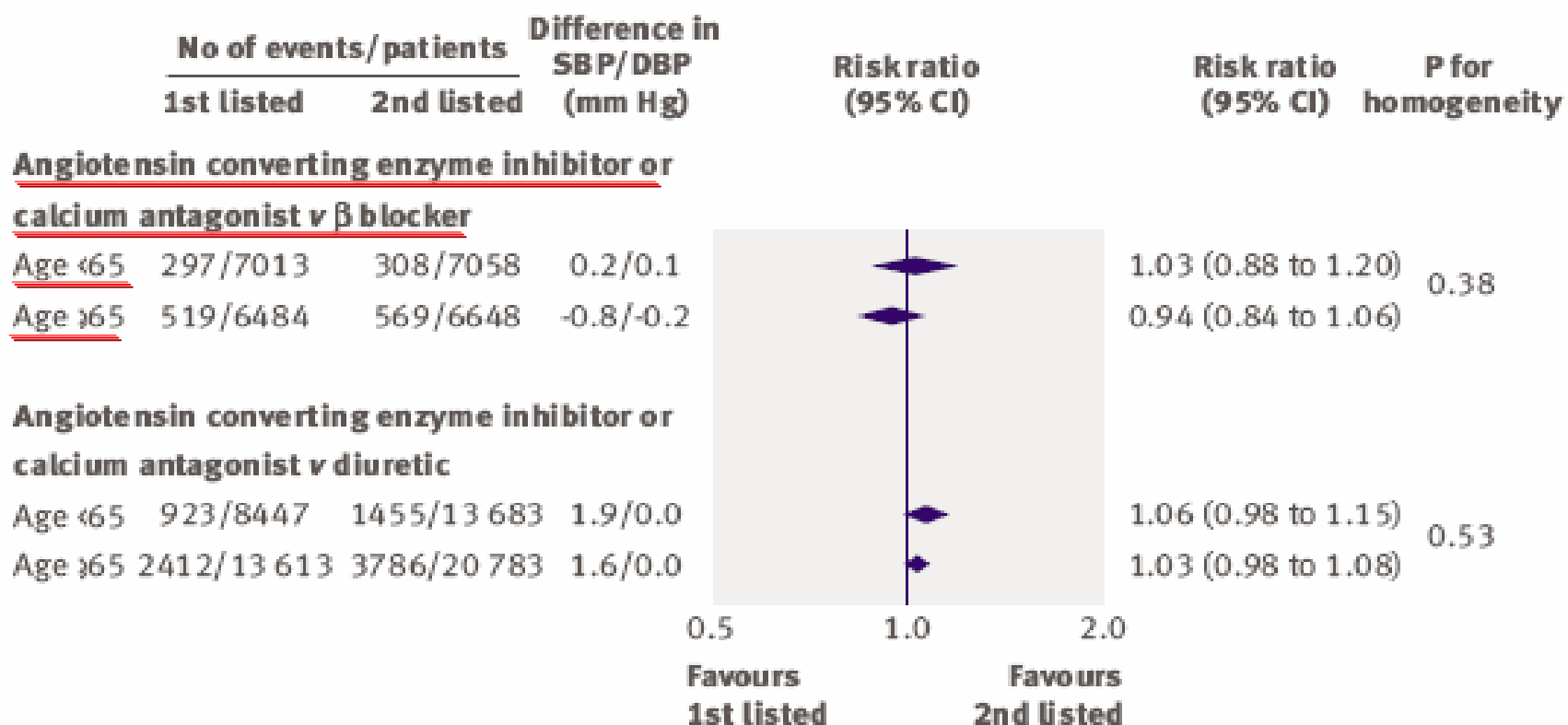
Results 31 trials, with 190 606 participants, were included. The meta-analyses showed no clear difference between age groups in the effects of lowering blood pressure or any difference between the effects of the drug classes on major cardiovascular events (all $P \geq 0.24$). Neither was there any significant interaction between age and treatment when age was fitted as a continuous variable (all $P > 0.09$). The meta-regressions also showed no difference in effects between the two age groups for the outcome of major cardiovascular events (<65 v ≥65; $P = 0.38$).

Conclusions Reduction of blood pressure produces benefits in younger (<65 years) and older (≥65 years) adults, with no strong evidence that protection against major vascular events afforded by different drug classes varies substantially with age.

Toplam Major Kardiyovasküler Olaylar



Toplam Major Kardiyovasküler Olaylar



WHAT IS ALREADY KNOWN ON THIS TOPIC

- Some blood pressure management guidelines recommend specific classes of blood pressure lowering treatment for particular age groups
- **Bazı hipertansiyon kılavuzları belirli yaşlarda spesifik antihipertansif tedavi önermektedir.**

WHAT THIS STUDY ADDS

- Blood pressure reduction produces similar proportional reductions in the risks of vascular events in younger (<65 years) and older (≥65 years) adults
- There was no clear evidence to support recommendations for particular drug classes in older or younger adults
- **Bu öneriyi destekleyecek yeterli kanıt bulunmamaktadır**

WHAT THIS STUDY ADDS

- Blood pressure reduction produces similar proportional reductions in the risks of vascular events in younger (<65 years) and older (≥65 years) adults
- The absolute benefits of treatment are likely to be particularly large among older individuals because of their higher average risk
- **There was no clear evidence to support recommendations for particular drug classes in older or younger adults**



Arteriyel Hipertansiyon Tedavisi 2007 Kılavuzu

Avrupa Hipertansiyon Derneği (ESH) ve Avrupa Kardiyoloji Derneği (ESC)
Arteriyel Hipertansiyon Tedavisi Görev Grubu

- Önemli beş antihipertansif ilaç sınıfı – tiazid diüretikleri, kalsiyum antagonistleri, ACE inhibitörleri, anjiyotensin reseptör antagonistleri ve beta-blokerler – tek başına veya kombinasyon halinde antihipertansif tedaviyi başlatmak ve sürdürmek için uygundur.
- Beta-blokerler, özellikle bir tiazid diüretik kombinasyonuyla, metabolik sendromlu hastalarda veya yeni ortaya çıkan diyabet riski yüksek olan hastalarda kullanılmamalıdır

Reappraisal of European guidelines on hypertension management: a European Society of Hypertension Task Force document-2009

Box 5. Choice of antihypertensive drugs

- 1) Large-scale meta-analyses of available data confirm that **major antihypertensive drug classes**, that is, diuretics, ACE inhibitors, calcium antagonists, angiotensin receptor antagonists, and **b-blockers** do not differ significantly for their overall ability to reduce BP in hypertension.



Arteriyel Hipertansiyon Tedavisi 2007 Kılavuzu

Avrupa Hipertansiyon Derneği (ESH) ve Avrupa Kardiyoloji Derneği (ESC)
Arteriyel Hipertansiyon Tedavisi Görev Grubu

- Bununla birlikte, karvedilol ve nebivolol gibi vazodilatör beta-blokerler için bu geçerli olmayabilir; bu ilaçların dismetabolik etkileri daha azdır veya yoktur ve klasik beta-blokerlere göre yeni ortaya çıkan diyabet insidansı azalmıştır

Reappraisal of European guidelines on hypertension
management: a European Society of Hypertension
Task
Force document

Journal of Hypertension 2009,
27:2121–2158



Arteriyel Hipertansiyon Tedavisi 2007 Kılavuzu

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- **Önemli beş antihipertansif ilaç sınıfı – tiazid diüretikleri, kalsiyum antagonistleri, ACE inhibitörleri, anjiyotensin reseptör antagonistleri ve beta-blokerler – tek başına veya kombinasyon halinde antihipertansif tedaviyi başlatmak ve sürdürmek için uygundur.**

Reappraisal of European guidelines on hypertension management: a European Society of Hypertension Task Force document-2009

2) There is also no undisputable evidence that major drug classes differ in their ability to protect against overall cardiovascular risk or cause-specific cardiovascular events, such as stroke and myocardial infarction.

The 2007 ESH/ESC guidelines conclusion that diuretics, ACE inhibitors, calcium antagonists, angiotensin receptor antagonists, and **b-blockers** can all be considered suitable for initiation of antihypertensive treatment, as well as for its maintenance, **can thus be confirmed**

Journal of Hypertension 2009, 27:2121–2158

Beta-Blokerler

Tedavi

- Hipertansiyon
- **Koroner arter hastalığı**
- Aritmiler
- Konjestif kalp yetersizliği
- Hipertrofik obsrüktif kardiyomiyopati
- Dissekan aort anevrizması

- Feokromositoma
- Hipertiroidi
- Migren-profilaksisi
- Esansiyel tremor
- Anksiyete
- Glokom (topikal)

Braunwald

β -Blockers and Progression of Coronary Atherosclerosis: Pooled Analysis of 4 Intravascular Ultrasonography Trials

Ilke Sipahi, MD; E. Murat Tuzcu, MD; Katherine E. Wolski, MPH; Stephen J. Nicholls, MBBS, PhD; Paul Schoenhagen, MD; Bo Hu, PhD; Craig Balog, BS; Mehdi Shishehbor, DO; William A. Magyar, BS; Timothy D. Crowe, BS; Samir Kapadia, MD; and Steven E. Nissen, MD

Ann Intern Med. 2007;147:10-18.
(3 July 2007)

Beta blockers and progression of coronary atherosclerosis: Pooled analysis of 4 intravascular ultrasonography trials

Çalışma	Değerlendirilen Tedavi	n
REVERSAL	Atorvastatin 80 mg/g vs pravastatin 40 mg/day	502
CAMELOT IVUS	Amlodipine 10 mg/g vs enalapril 20 mg/day vs placebo	274
ACTIVATE	Pactimibe 100 mg/g vs placebo	408
ASTEROID	Rosuvastatin 40 mg/day	349

REVERSAL=Reversal of Atherosclerosis with Aggressive Lipid Lowering

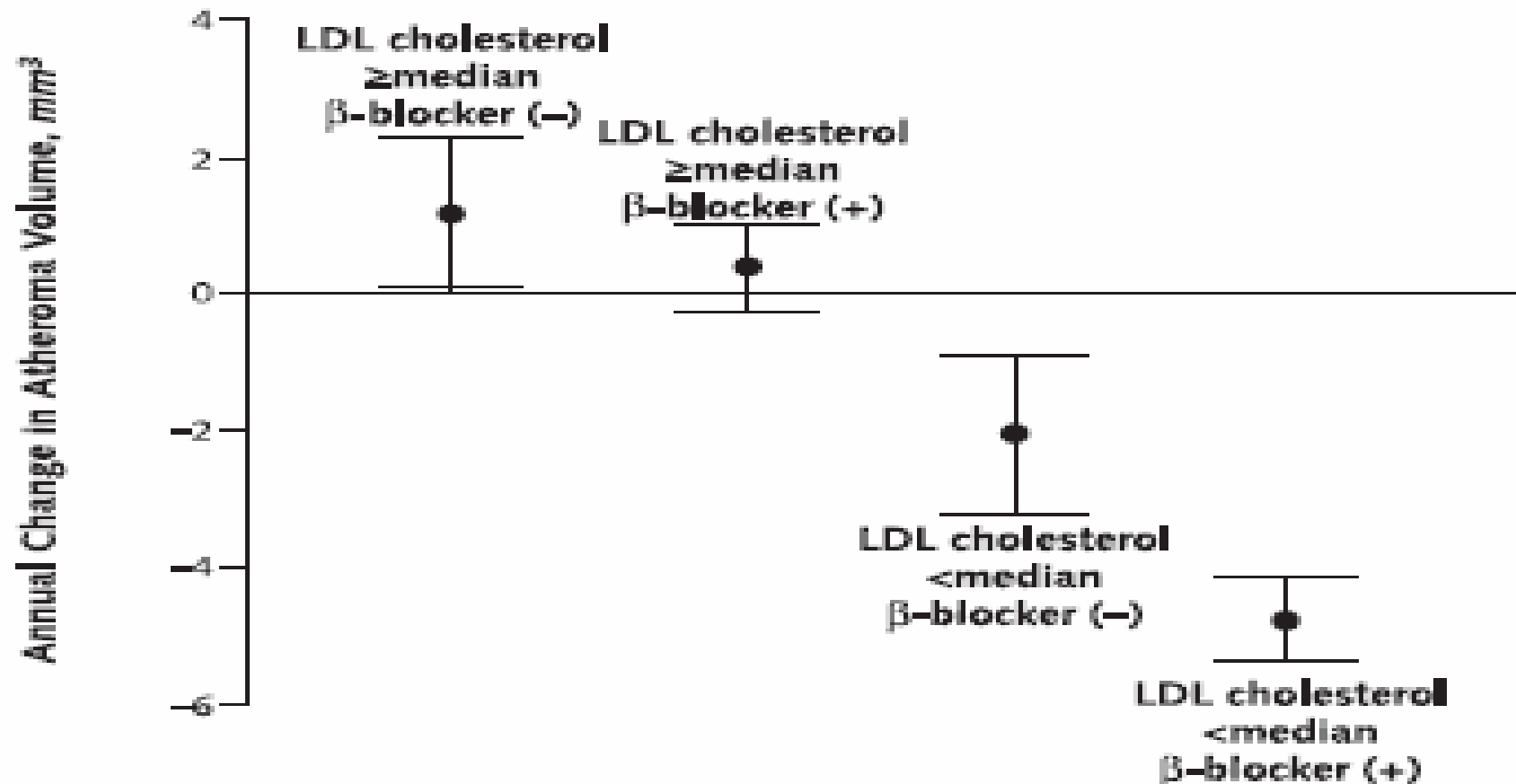
CAMELOT IVUS=Comparison of Amlodipine versus Enalapril to Limit Occurrences of Thrombosis Intravascular Ultrasound

ACTIVATE=Acyl-CoA: Cholesterol Acyltransferase Intravascular Atherosclerosis Treatment Evaluation

ASTEROID=A Study To Evaluate the Effect of Rosuvastatin on Intravascular Ultrasound- Derived Coronary Atheroma Burden

Sipahi I et al. *Ann Intern Med* 2007; 147:10-18.

Figure. Yearly atheroma progression rates.

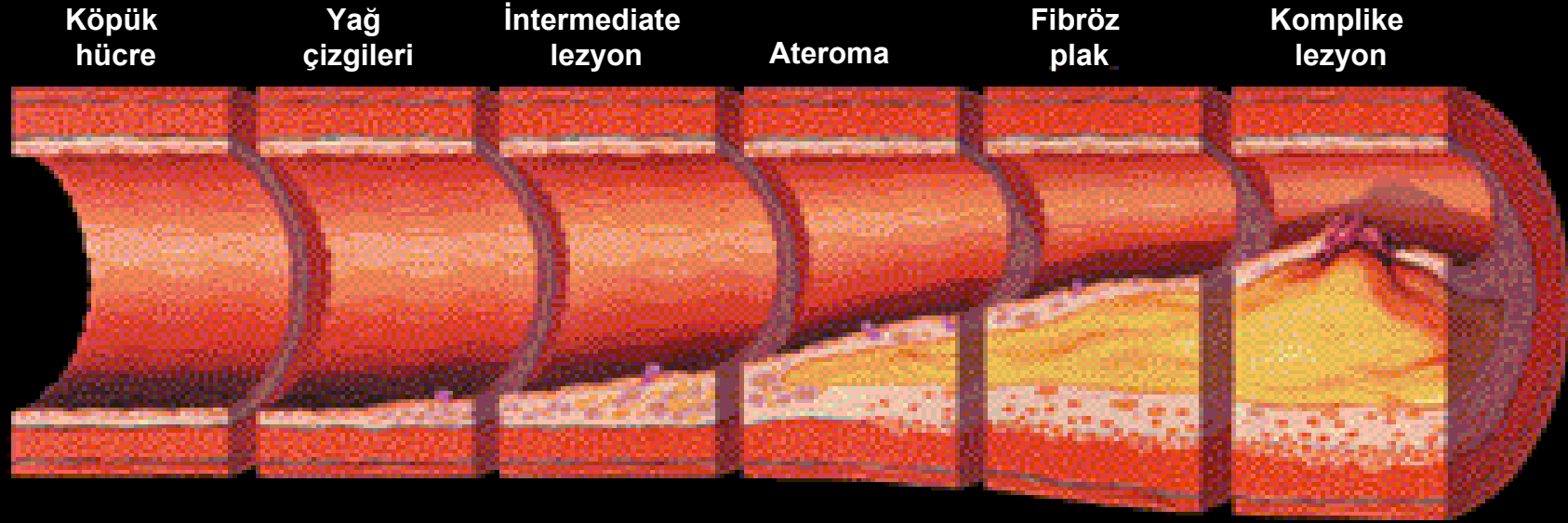


Sipahi I et al. *Ann Intern Med* 2007; 147:10-18.

Sonuç:

- **Beta blokörler koroner ateroskleroza ilerlemesini yavaşlatabilir.**
- **Bu sonuç beta blokörlerin koroner arter hastalığının pek çok formunda kullanımını öneren kılavuzları desteklemektedir**

ATEROSKLEROZ SÜRECİ



Endotelyal disfonksiyon

Birinci dekattan itibaren

İkinci dekattan itibaren

Üçüncü dekattan itibaren

Esas olarak lipid birikimi ile

SMC ve
kollajen

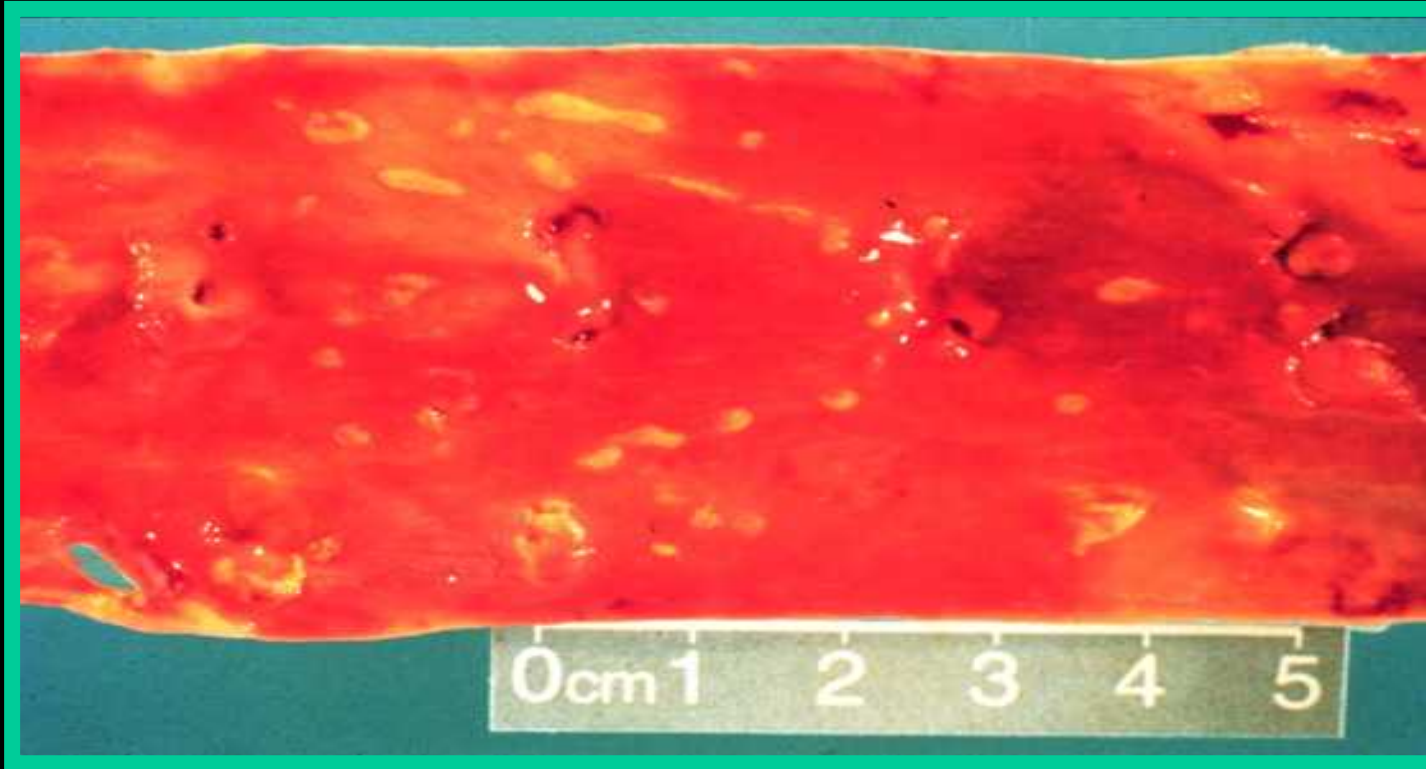
Trombosis
hematom

Ateroskleroz Süreci Yaşamla Başlar



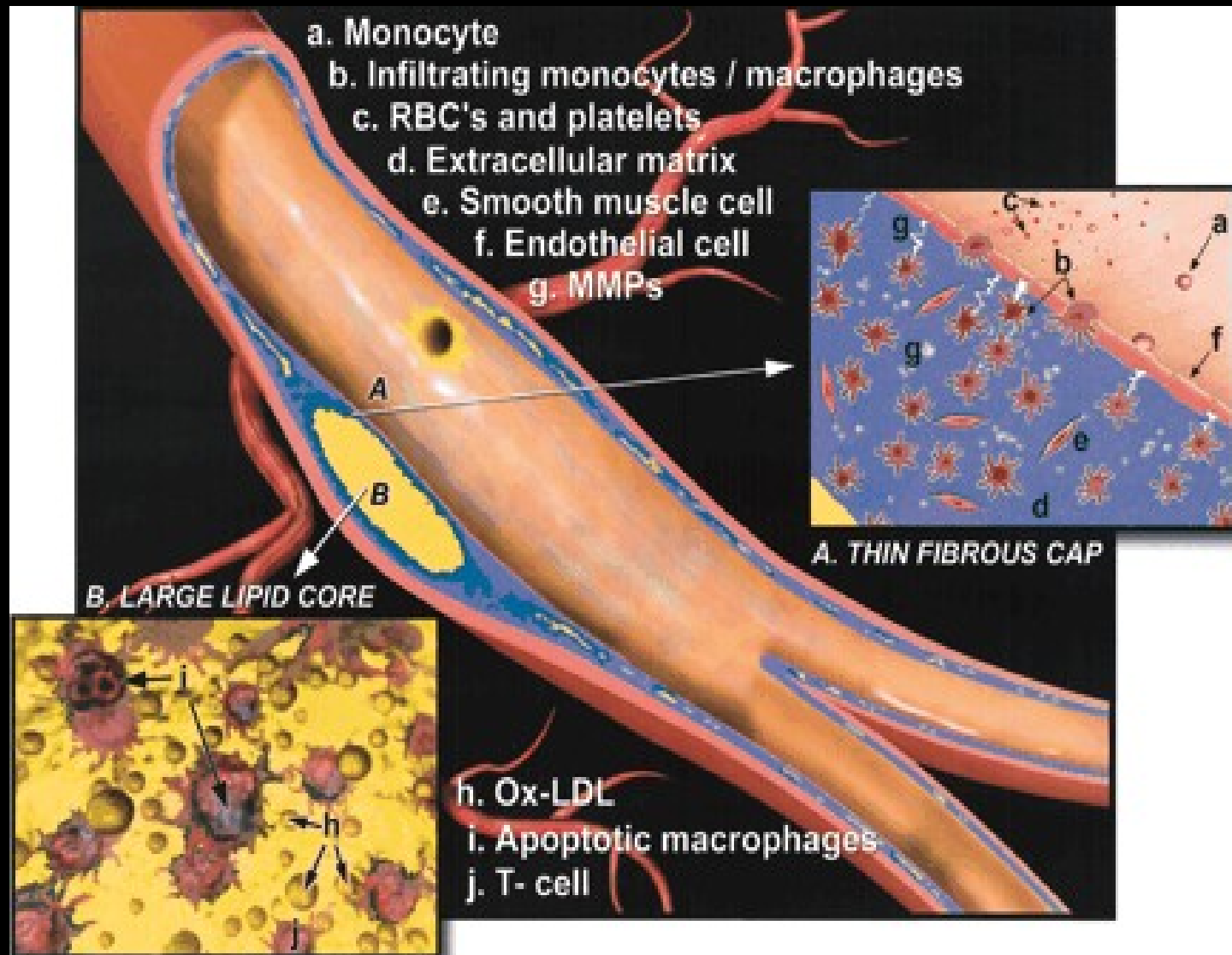
**10 yaşındaki bir kızın torasik aortası
İnterkostal arterlerin çıkış yerleri arasında "Yağlı
Çizgilenmeler"**

Ateroskleroz Progresiftir



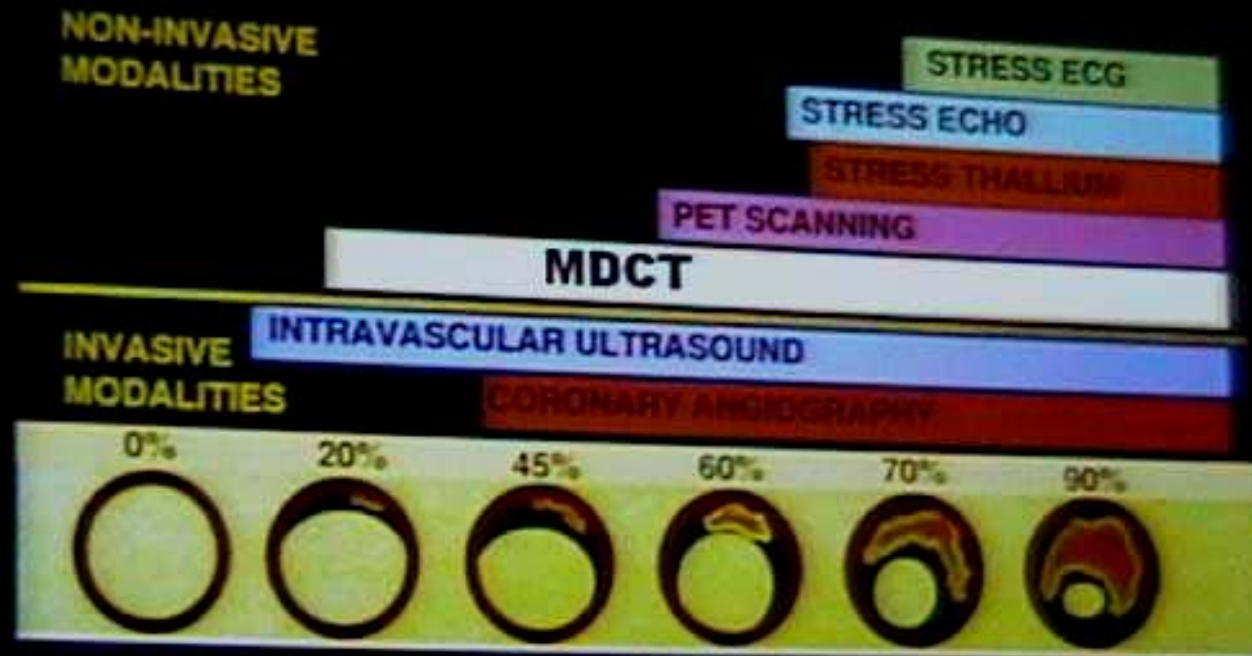
**42 yaşındaki bir hastanın torasik aortası
Yağlı çizgiler plağa dönüşmüş**

REMODELING



KORONER ANJIOGRAFI

Testing for Coronary Disease



DATA TAKEN FROM "THE DAWN OF A NEW ERA-
NON-INVASIVE CORONARY IMAGING" R. ERBEL HERZ 1996; 21, 75-77

KORONER BT ANJIOGRAFi



2007 ESH/ESC Kılavuzu/2009 Güncelleme

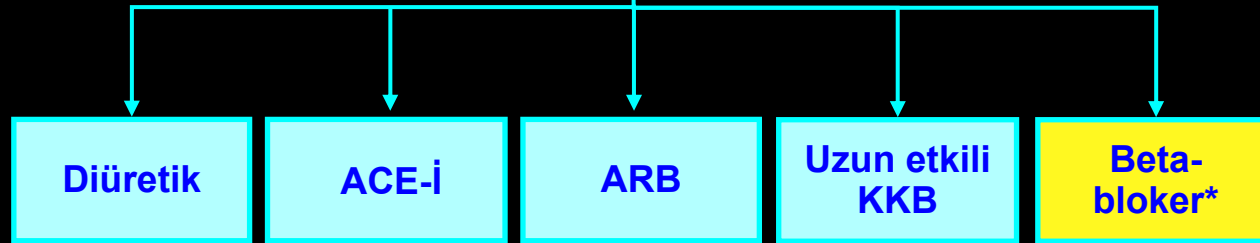
Hipertansiyon Tedavisine Yaklaşım

HEDEF

<140/90 mmHg

Yaşam tarzının düzenlenmesi

Eşlik Eden Özel Bir Endikasyon Yoksa



Monoterapi ya da kombinasyon şeklinde

***BB (özellikle tiazid diüretikleriyle birlikte) metabolik sendromu olan ya da diyabet gelişme riski yüksek olan hastalarda kullanılmamalı**

REVIEW

Re-examining the efficacy of β -blockers for the treatment of hypertension: a meta-analysis

Nadia Khan, Finlay A. McAlister

- Lindholm and associates, Beevers cautioned that there was a danger of **“throwing out the baby with the bath water”** in recommending against the use of β -blockers for the treatment of hypertension.