



Kronik Total Oklüzyon (KTO) da İlaç Salınlı Stentler

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Kardiyoloji Anabilim Dalı

AHA ACC LEZYON SINIFLAMASI

• Tip A

- Diskret
- Konsantrik
- Kolay ulaşılabilir
- Düzgün konturlu
- Çok az kalsifikasyon ya da yok
- Ostial değil
- Büyük yan dal tutulumu yok
- Trombüs yok

• Tip B

- Tübüler
- Eksantrik
- Orta tortuyozite
- Orta derece açılanma (45-90)
- Kontur düzensiz
- Orta-ileri kalsifikasyon
- Total oklüzyon (<3 ay)
- Ostiyal
- Bifürkasyon
- Trombüs var.

• Tip C

- Diffüz
- İleri tortuyozite
- İleri açılanma
- Total oklüzyon (>3 ay)
- Büyük bir yan dalı korumak mümkün değil
- Dejenere SVG

B1= B tipinden bir özellik

B2= B tipinden iki veya daha fazla özellik

RESTENOZ RİSKİNİ ARTIRAN ANATOMİK FAKTÖRLER

Proksimal LAD

Safen greft darlıkları

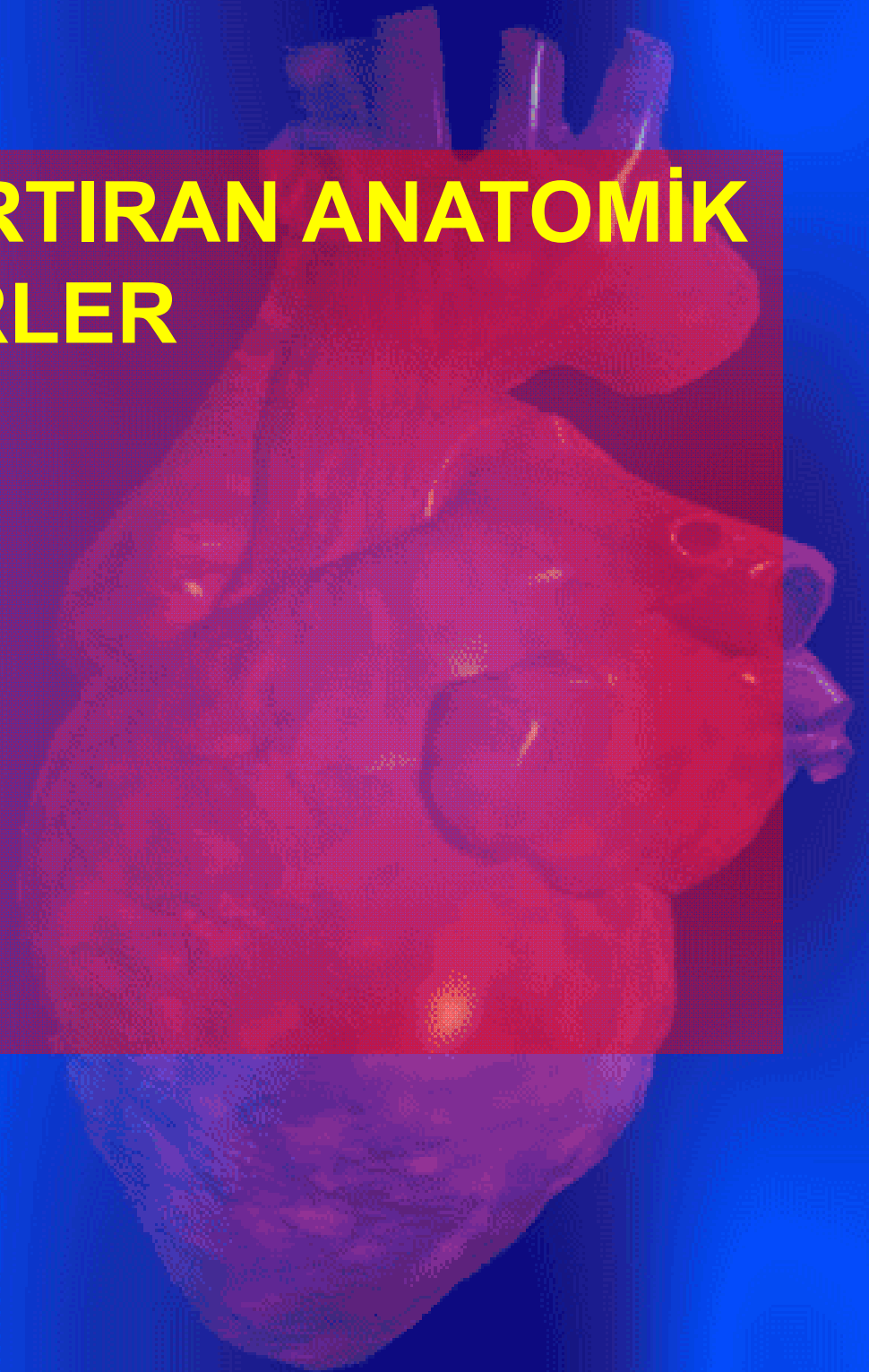
Uzun lezyon

Kronik Total Oklüzyon

Restenotik darlık

Ardışık darlıklar

Küçük damar çapı



İSS KILAVUZU: CARDIOVASCULAR RESEARCH FOUNDATION

2006

I

A

- ISR of BMS (vs. PTCA or brachytherapy)

B

- Chronic total occlusions

IIa

B

- Bifurcation (DES main branch, PTCA of side branch w/provisional DES)

- Aorto-ostial lesions

- Multivessel disease (mostly non complex)

- Saphenous vein grafts

Eski ESC Kılavuzunda İlaç Kaplı Stentler Hangi Lezyonlarda Önerilir?

Sınıf I B

Semptomatik veya iskemik KAH varlığında
Hedef damar çapı < 3 mm veya
Lezyon uzunluğu > 15 mm

I	IIa	IIb	III
B			

Sınıf IIa C

Küçük damar

Kronik total oklüzyon

Ostial ve bifurkasyon lezyonları

İnsülin bağımlı DM

Çok damar hastalığı

Korunmasız sol ana koroner

Stent restenozu

I	IIa	IIb	III
C			

2010 ESC Kılavuzunda İlaç Kaplı Stentler Hangi Lezyonlarda Önerilir?

Table 33 Recommendations for specific percutaneous coronary intervention devices and pharmacotherapy

	Class ^a	Level ^b	Ref ^c
FFR-guided PCI is recommended for detection of ischaemia-related lesion(s) when objective evidence of vessel-related ischaemia is not available.	I	A	15, 28
<u>DES^d are recommended for reduction of restenosis/re-occlusion, if no contraindication to extended DAPT.</u>	I	A	45, 46, 55, 215
Distal embolic protection is recommended during PCI of SVG disease to avoid distal embolization of debris and prevent MI.	I	B	171, 213
Rotablation is recommended for preparation of heavily calcified or severely fibrotic lesions that cannot be crossed by a balloon or adequately dilated before planned stenting.	I	C	—

KTO REVASKÜLARİZASYON BAŞARI SONUCUNA GÖRE UZUN SÜRELİ SAĞKALIM

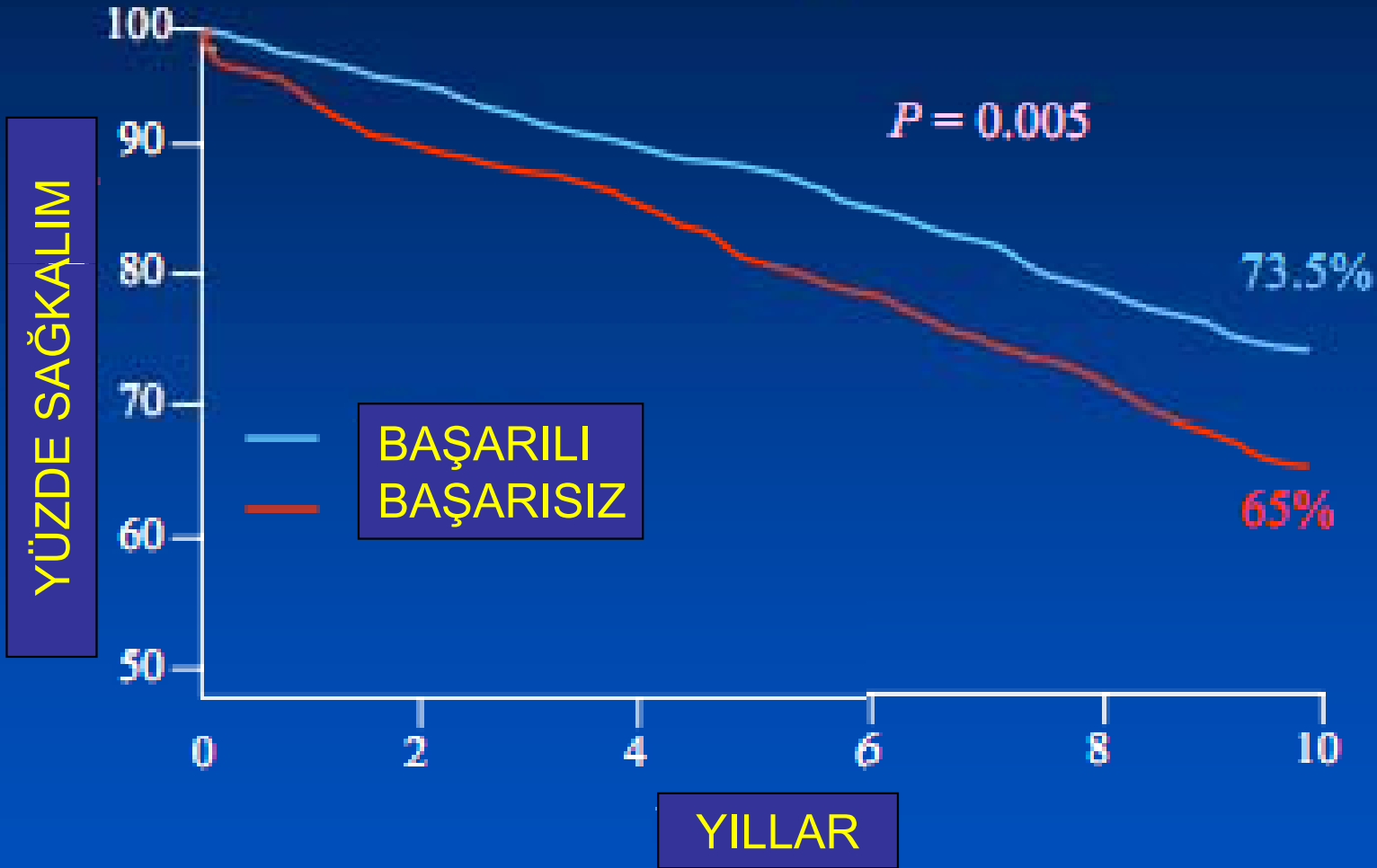
Çalışma	Hasta	Başarı	Takip (yıl)	Mortalite		P değeri
				Başarısız	Başarılı	
British Columbia Cardiac Registry ¹	1458	1118(74.4%)	1	10.0	19.0	<0.001
Suero et al. ²	2007	1491(76.7%)	10	26.6	35.0	0.001
TOAST-GISE ³	369	286(77.5%)	6	1.1	3.6	0.13

¹ Kandhari, et al. TCT 2003

² Suero, et al. JACC 2001;38:409-414

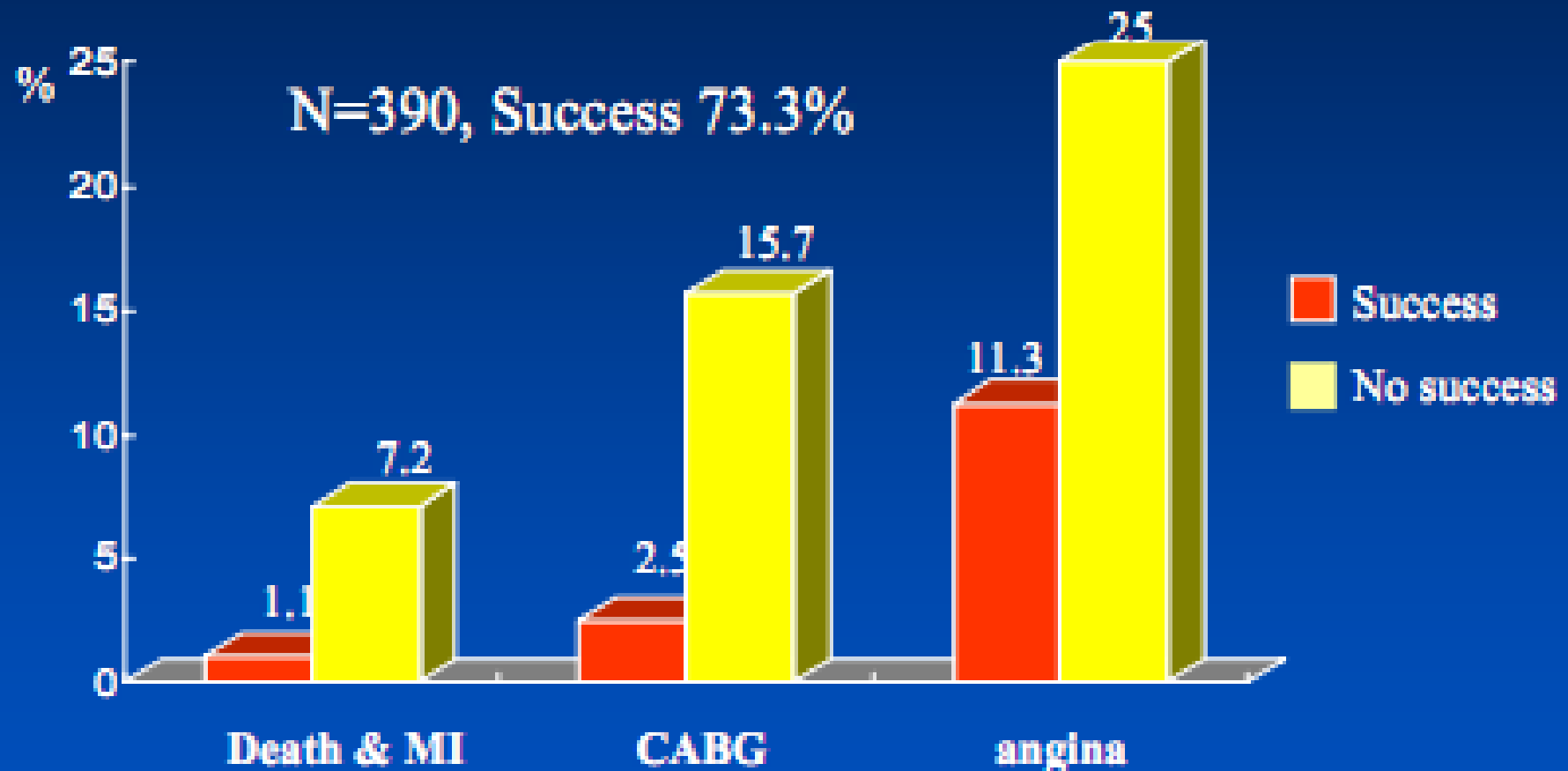
³ Olthoff Z, et al. JACC 2003; 41:1673-1678

KTO REVASKÜLARİZAYON BAŞARISI VE SAĞKALIM

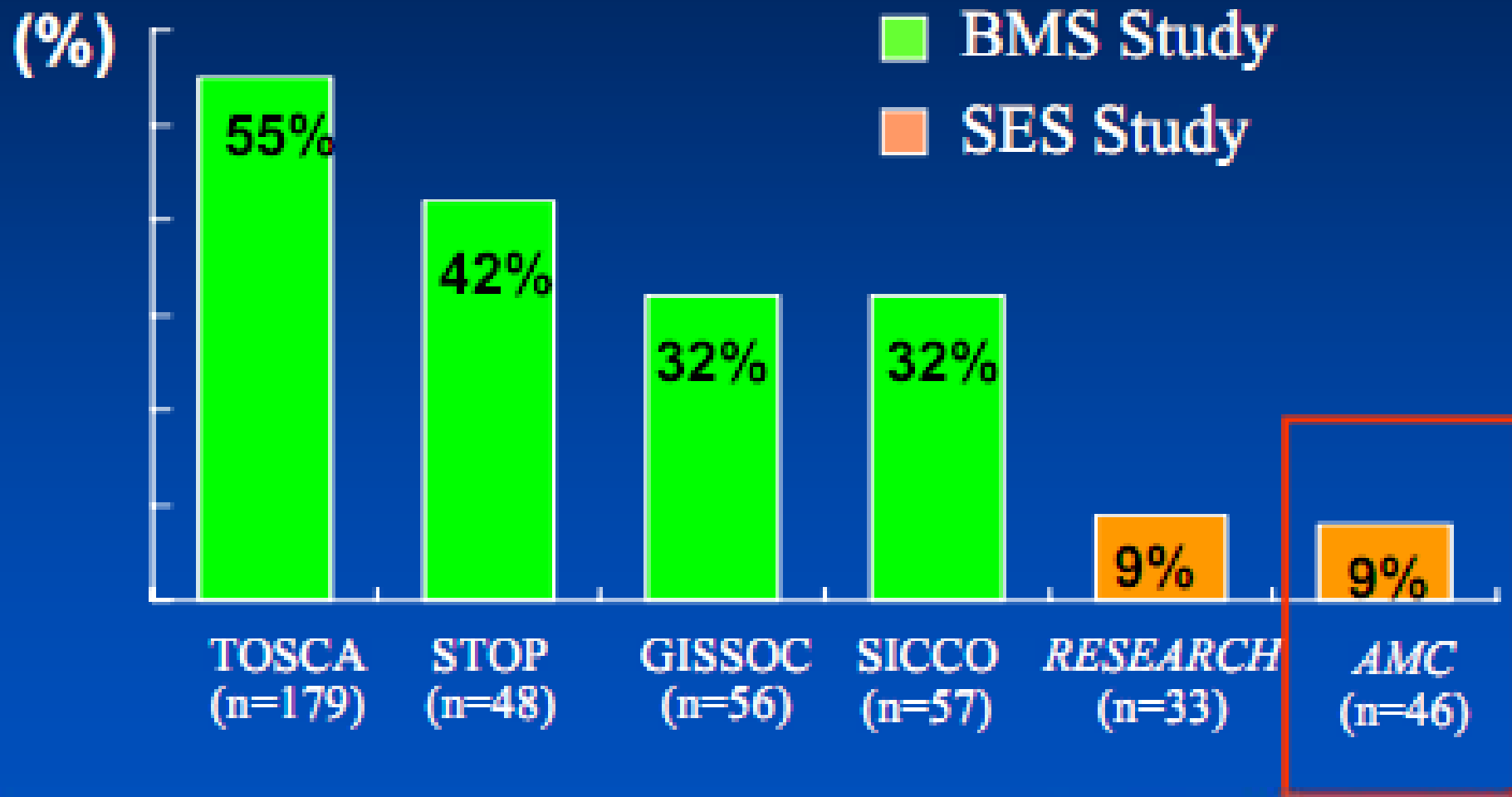


KTO REVASKÜLARİZASYONUNUN 12 AYLIK KLİNİK SONUÇLARI

TOAST-GISE



GEÇMİŞTEKİ MS ÇALIŞMALARINDA VE DES ÇALIŞMALARINDA 6 AYLIK RESTENOZ



PRISON-II

Kronik total oklüzyonu olan 200 hasta
Prospektif, randomize, tek kör
Oklüzyon süresi > 2hf, iskemi(+)

Bx Velocity
n = 100

Cypher
n = 100

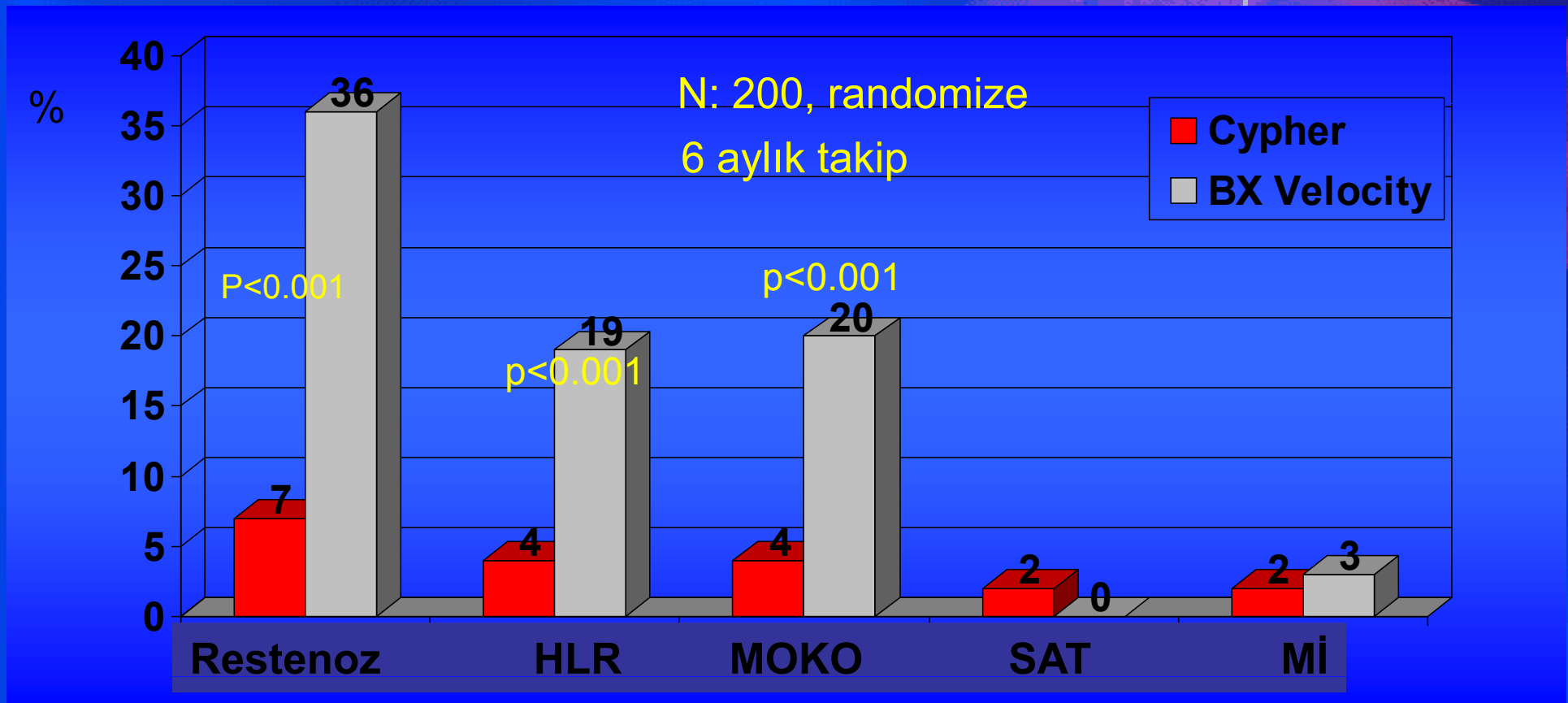
Primer sonlanma noktası: 6 aylık takipte in-segment restenoz
Sekonder sonlanma noktaları: MKO, ISR, geç kayıp, HDR

Antiplatelet tedavi: ASA / Clopidogrel 6 ay

Kronik Total Oklüzyon

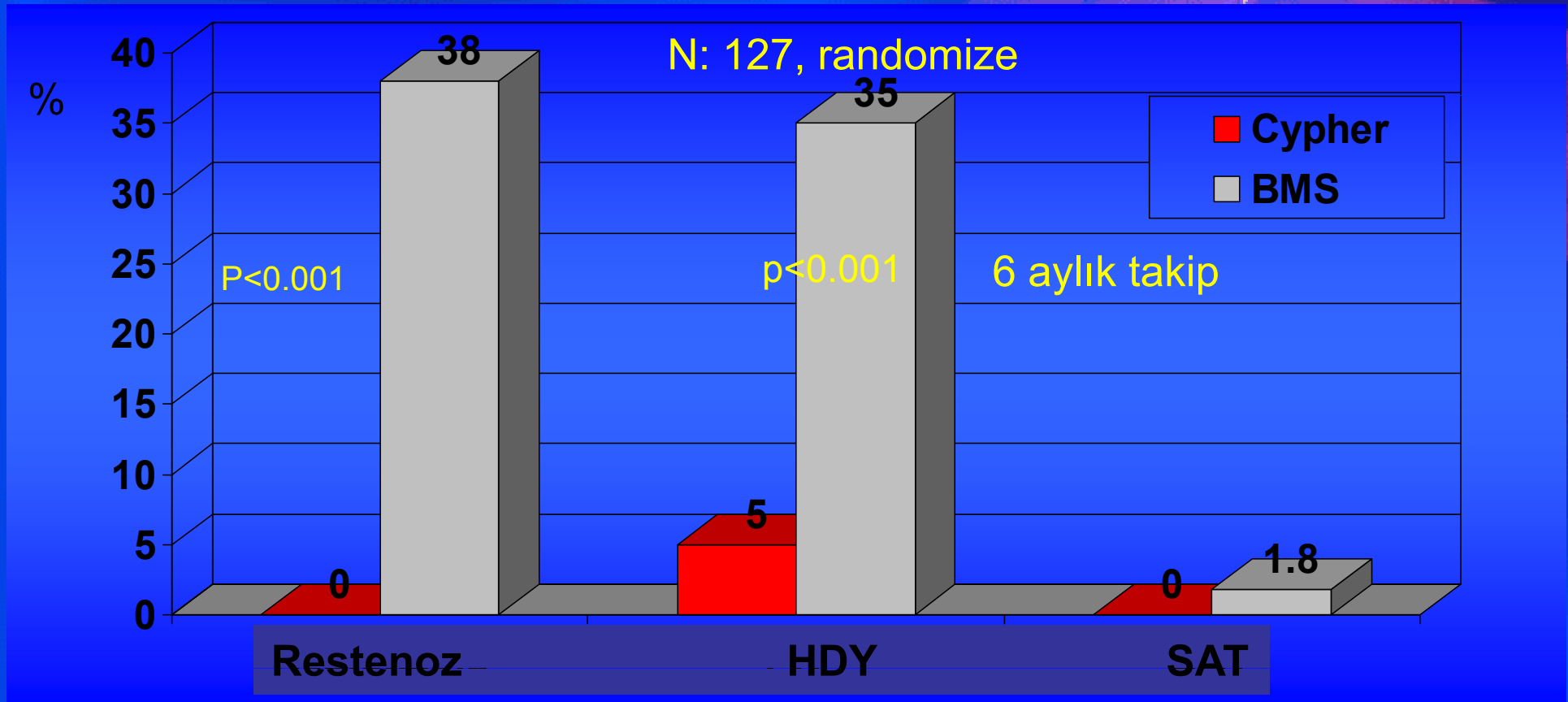
PRISON II

- Tek KTO >2 hafta



Kronik Total Oklüzyon

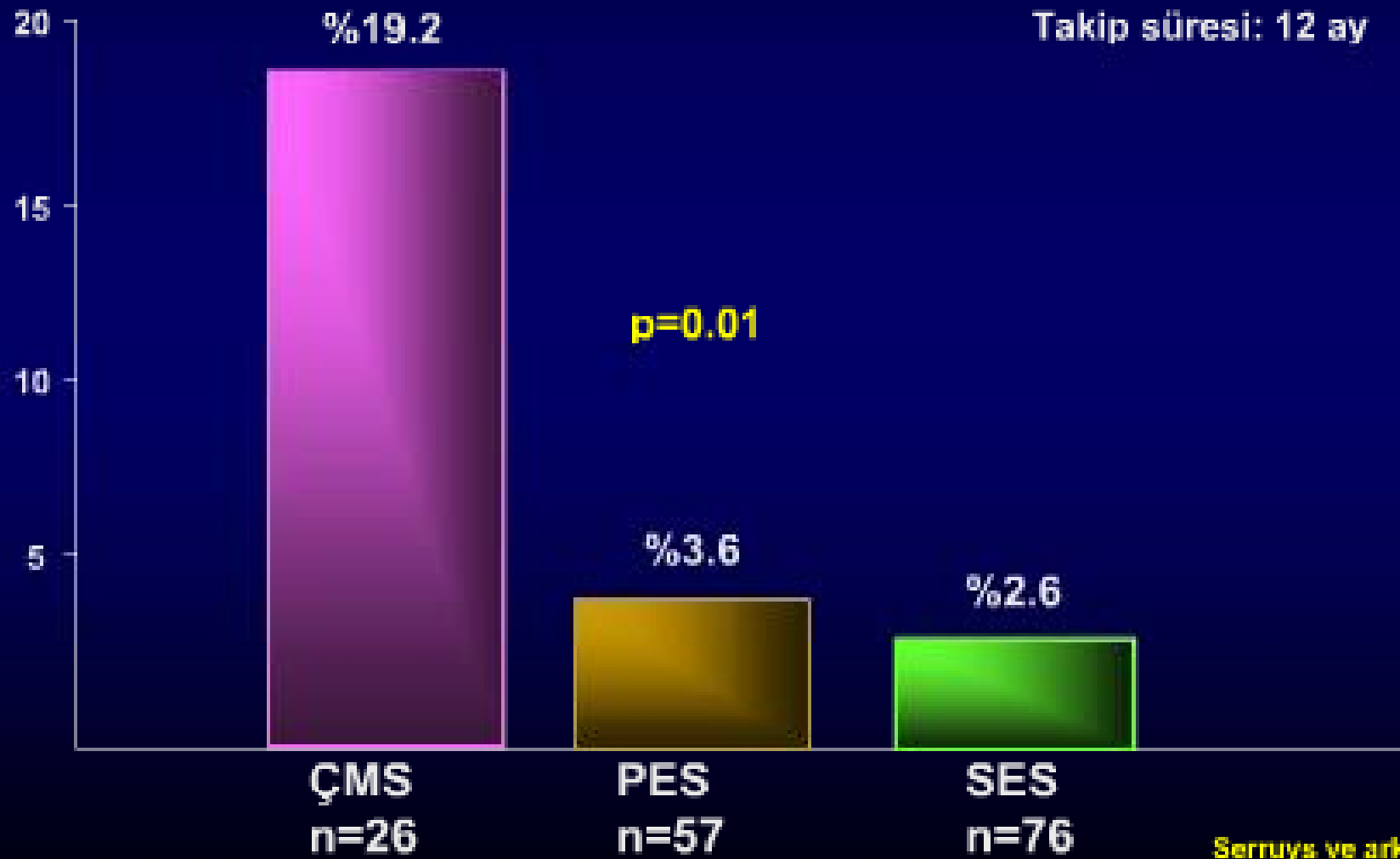
SCANDSTENT Subgrup Analizi



RESEARCH ve TSEARCH ÇALIŞMALARI

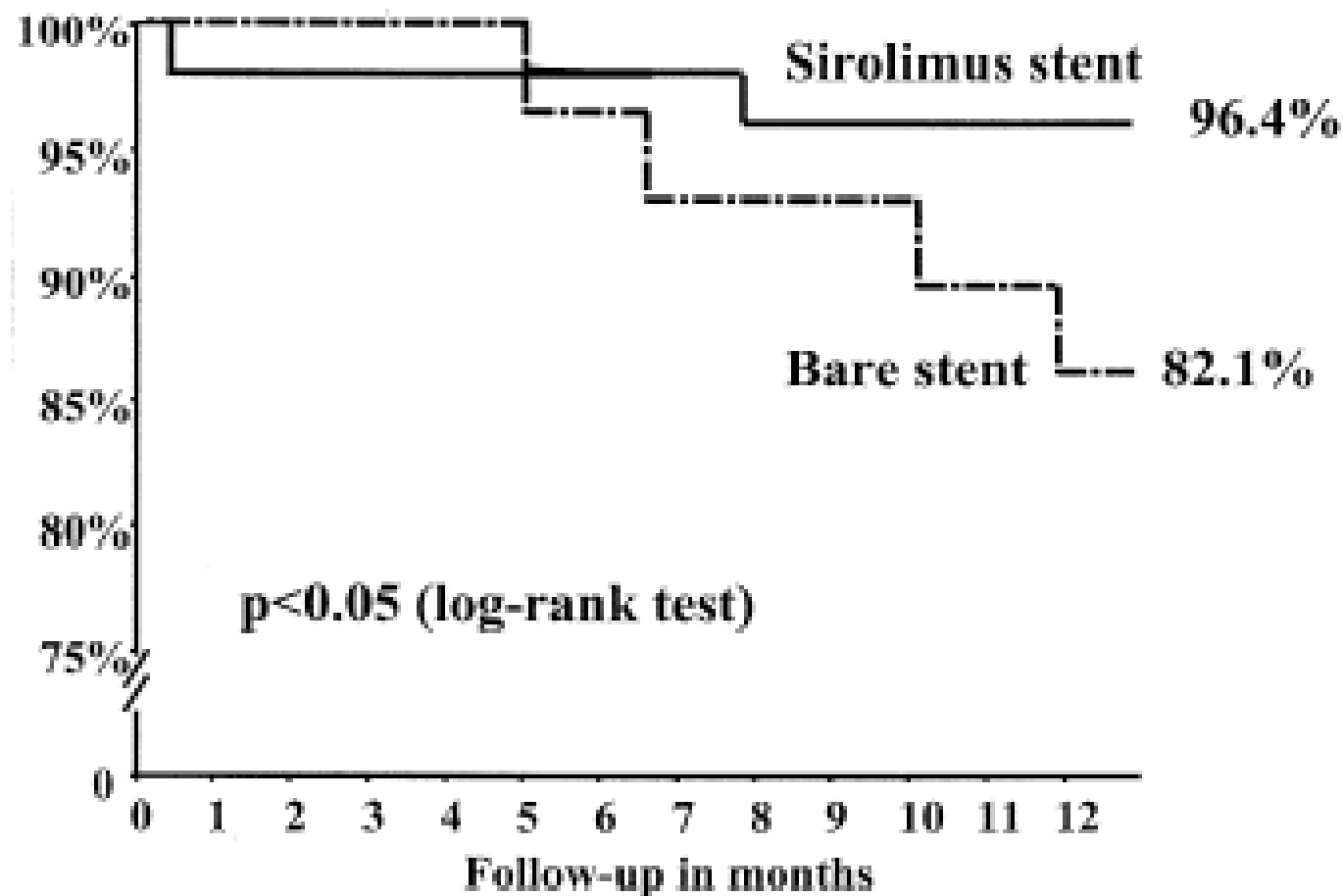
	Çıplak Metal Stent (n=26)	Sirolimus (n=76)	Paclitaxel (n=58)
Oklüzyon uzunluğu(mm)	13.0±7.2	10.3±5.9	11.2±6.6
Referans çap(mm)	2.34±0.43	2.35±0.51	2.60±0.49
Stent/hasta	1.8±0.8	2.2±1.2	2.6±1.3
Stentlenen total uzunluk(mm)	41.5±23.3	48.8±27.4	58±32.8

RESEARCH ve T-SEARCH Çalışmaları



Significant Reduction in Restenosis After the Use of Sirolimus-Eluting Stents in the Treatment of Chronic Total Occlusions

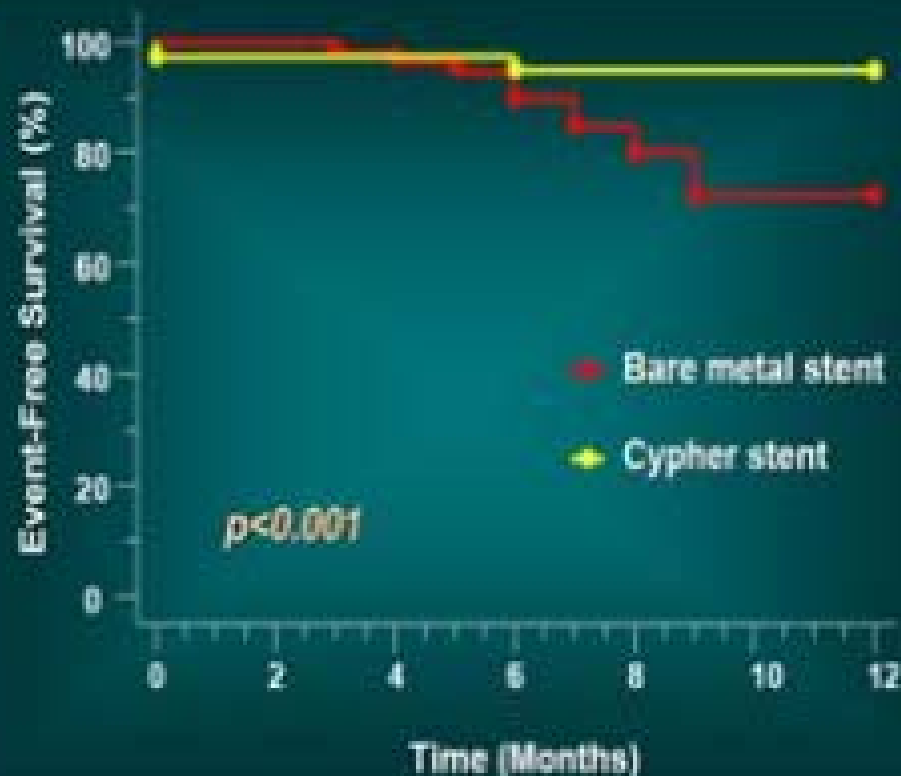
Angela Hoye, MB, CHB, Kengo Tanabe, MD, Pedro A. Lemos, MD, Jiro Aoki, MD, Francesco Saia, MD, Chourmouziou Arampatzis, MD, Muzaffer Degertekin, MD, Sjoerd H. Hofma, MD, Georgios Sianos, MD, PHD, Eugene McFadden, MB, CHB, FACC, Willem J. van der Giessen, MD, PHD, Pieter C. Smits, MD, PHD, Pim J. de Feyter, MD, PHD, FACC, Ron T. van Domburg, PHD, Patrick W. Serruys, MD, PHD, FACC



- PACTO, PSS (n=48), MS (n=48)

Clinical Outcomes in CTO: BMS vs. Cypher: RESEARCH

6 month follow-up	TAXUS	Matched BMS	P value
N pts	48	48	48
Late loss	0.19±0.62	1.21±0.70	<0.001
Restenosis	8.3%	51.1%	<0.001
Reocclusion	2.1%	23.4%	<0.001
Repeat PCI	6.3%	31.9%	<0.001
CABG	0%	12.8%	-
MACE	12.5%	47.9%	<0.001

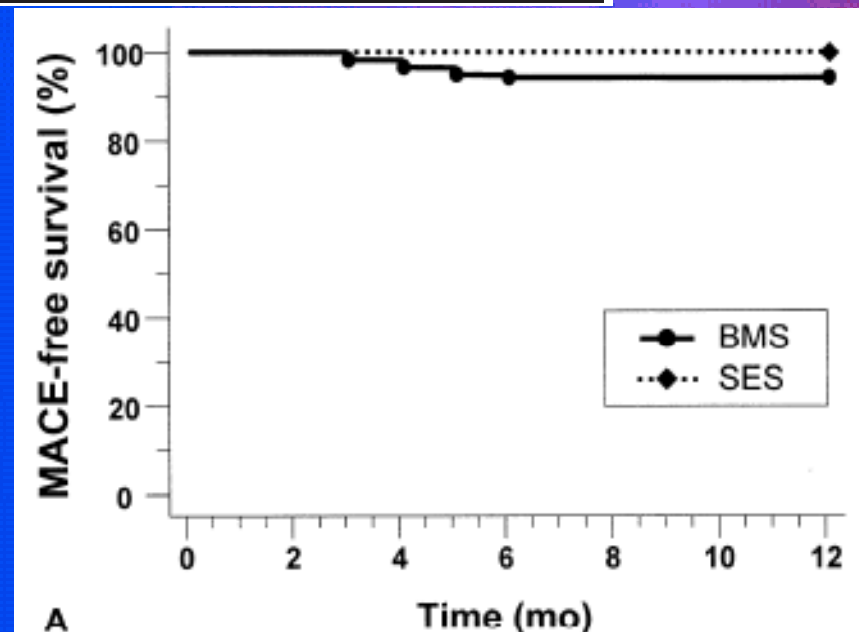
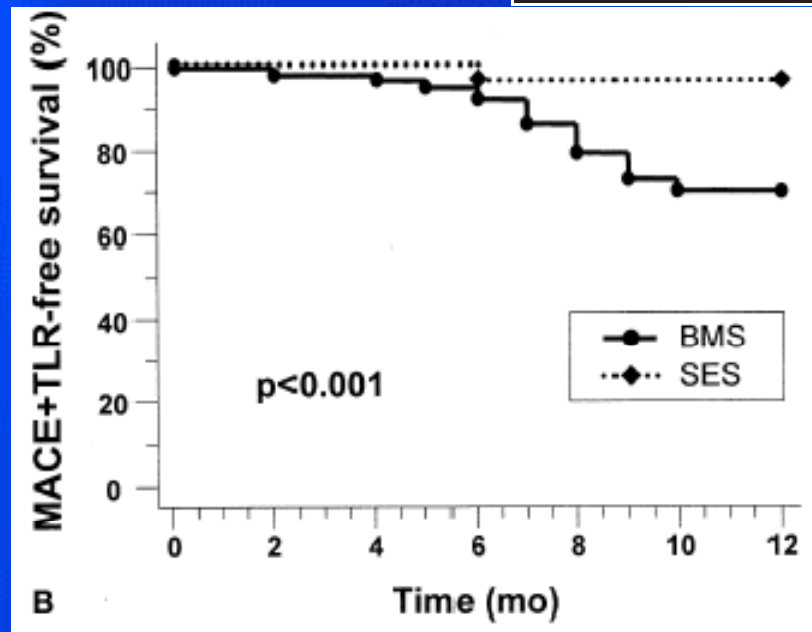
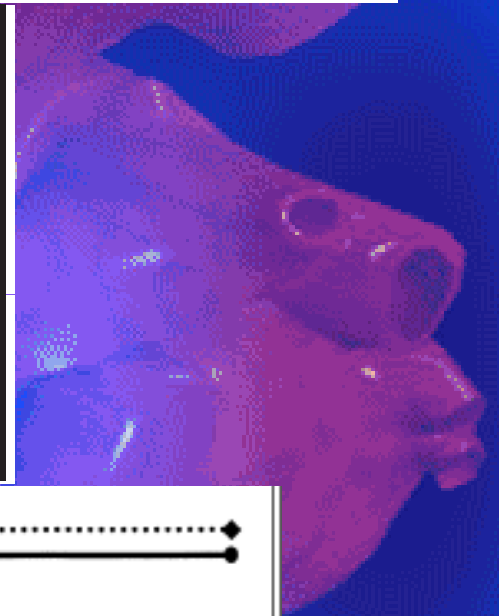


Impact of Sirolimus-Eluting Stent on the Outcome of Patients With Chronic Total Occlusions

Sunao Nakamura, MD, PhD, Tami Selvan Muthusamy, MD, Jang-Ho Bae, MD, Yeo Hans Cahyadi, MD, Wasan Udayachalerm, MD, and Damras Tresukosol, MD

TABLE 5 Long-term Clinical Outcome (12 months)

	BMS (n = 120)	SES (n = 60)	p Value
Major adverse cardiac event			
Death	0	0	NS
Myocardial infarction	3 (3%)	0	NS
Coronary bypass	7 (6%)	0	0.01
Repeat percutaneous coronary intervention	<u>44 (37%)</u>	<u>2 (3%)</u>	0.001
Any event	<u>50 (42%)</u>	<u>2 (3%)</u>	0.001



German Study with Taxus

	Taxus (n=48)	BMS (n=48)	P value
Late loss (mm)	0.19 ± 0.62	1.21 ± 0.70	<0.001
Restenosis (%)	8.3	51.1	<0.001
Reocclusion (%)	2.1	23.4	0.003
1 yr MACE, n(%)	6 (12.5)	23 (47.9)	<0.001
Death (%)	2.1	4.2	NS
MI (%)	4.2	2.1	NS
Re-PCI (%)	6.3	31.9	<0.001
CABG (%)	0	12.8	NS

AMC de KTO

179 HASTA 185 LEZYON

March 2003-July 2004

February 2002-February 2003

DES

104 patients (106 lesions)

BMS

75 patients (79 lesions)

Restenosis Rate: 8.7%

More Complex Lesion

Follow-up Results	DES	BMS	P value		DES	BMS	P value
	(N=46)	(N=54)			(N=106)	(N=79)	
Reference, mm	2.85 ± 0.57	3.12 ± 0.47	0.053	Pre-stenting, mm			
MLD, mm	2.37 ± 0.76	1.69 ± 0.88	<0.000	Proximal RD	2.93 ± 0.50	3.11 ± 0.58	0.052
DS, %	11.8 ± 19.3	34.7 ± 22.7	<0.000	Lesion length	35.9 ± 19.5	25.8 ± 11.9	0.003
Late loss, mm	0.44 ± 0.64	1.13 ± 0.74	<0.000	Post-stenting, mm			
Loss index	16.06 ± 23.66	40.29 ± 28.88	<0.000	Proximal RD	3.07 ± 0.49	3.29 ± 0.60	0.070
<u>Restenosis</u>	4 (8.7)	16 (29.6)	0.009	MLD	2.69 ± 0.45	2.89 ± 0.60	0.020
				DS (%)	13.5 ± 13.4	12.5 ± 16.1	0.759
				Acute gain	2.66 ± 0.45	2.82 ± 0.58	0.066

Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

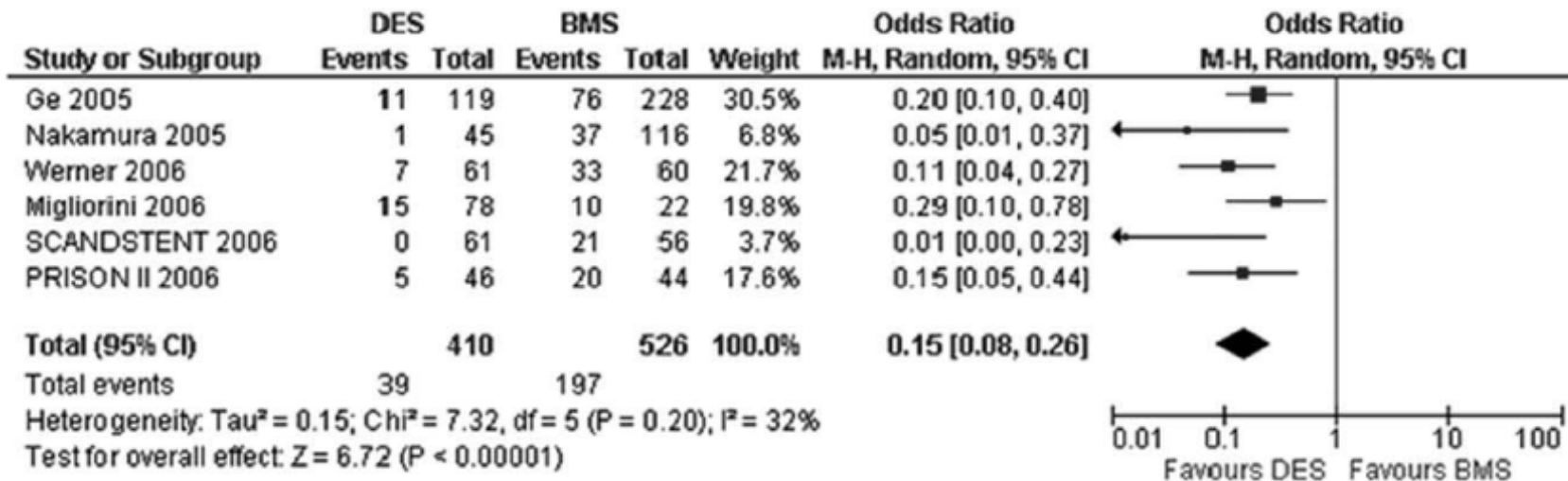
Bilal Saeed,¹ MD, David E. Kandzari,² MD, Pierfrancesco Agostoni,³ MD, PhD,
William L. Lombardi,⁴ MD, Bavana V. Rangan,⁵ BDS, MPH, Subhash Banerjee,⁵ MD,
and Emmanouil S. Brilakis,^{5*} MD, PhD

Catheterization and Cardiovascular Interventions 77:315–332 (2011)

6-12 AYLIK SONUÇLAR

A

SEGMENT İÇİ RESTENOZ

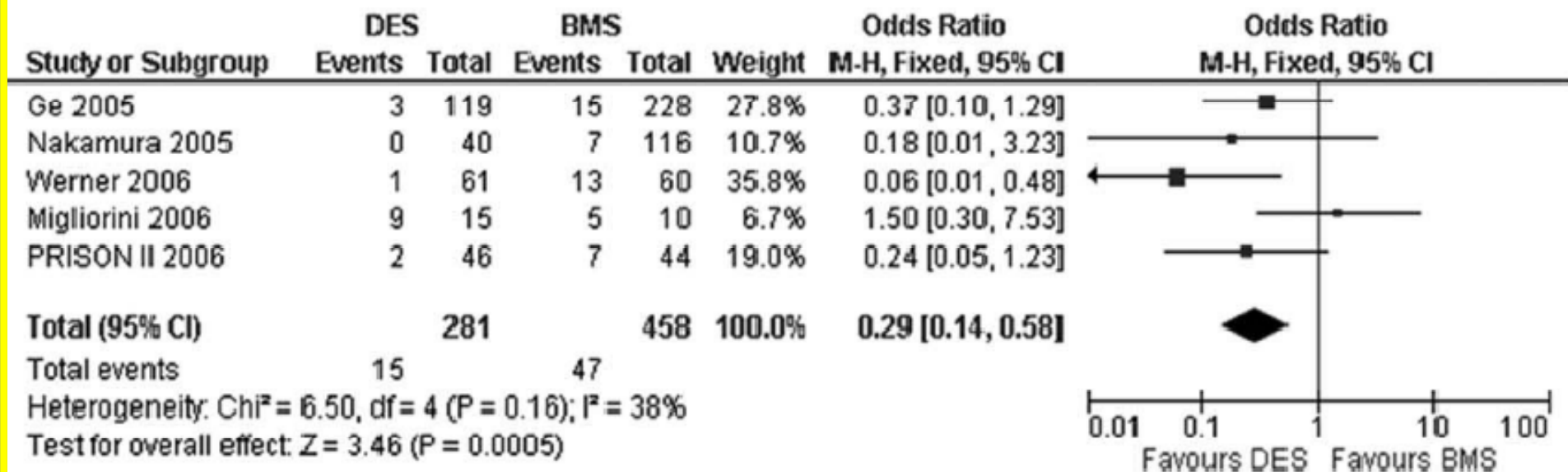


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

6-12 AYLIK SONUÇLAR

B

REOKLÜZYON

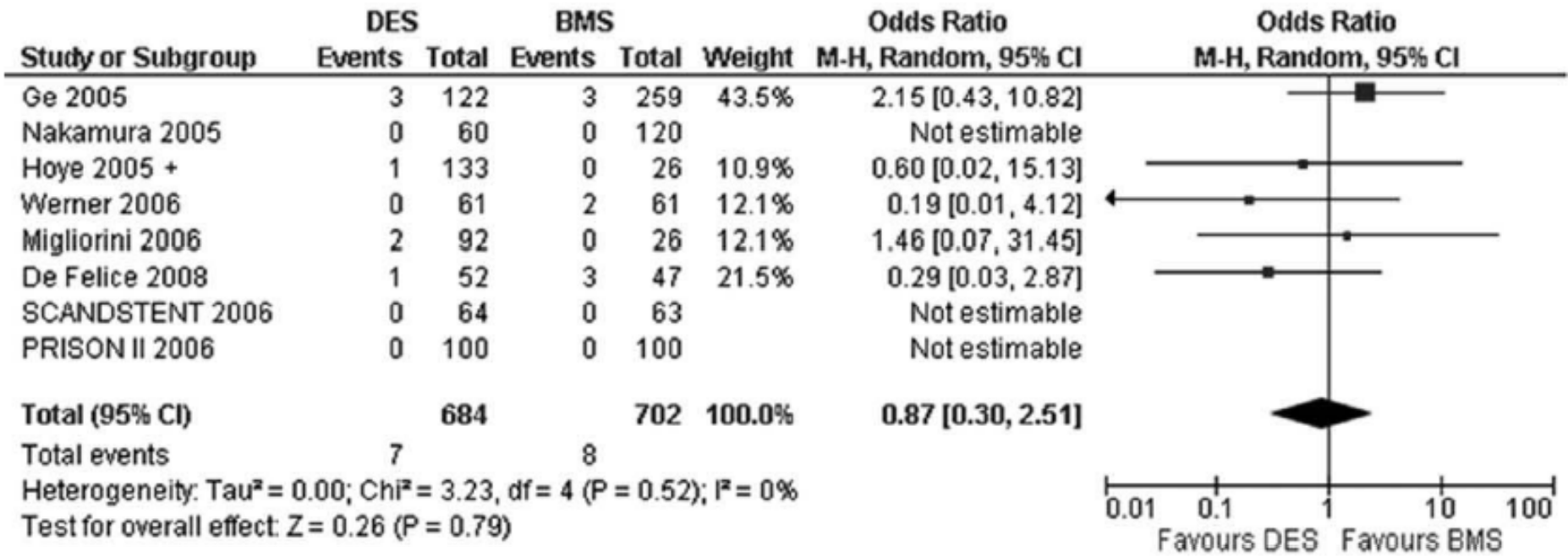


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6-12 AYLIK SONUÇLAR

A

ÖLÜM

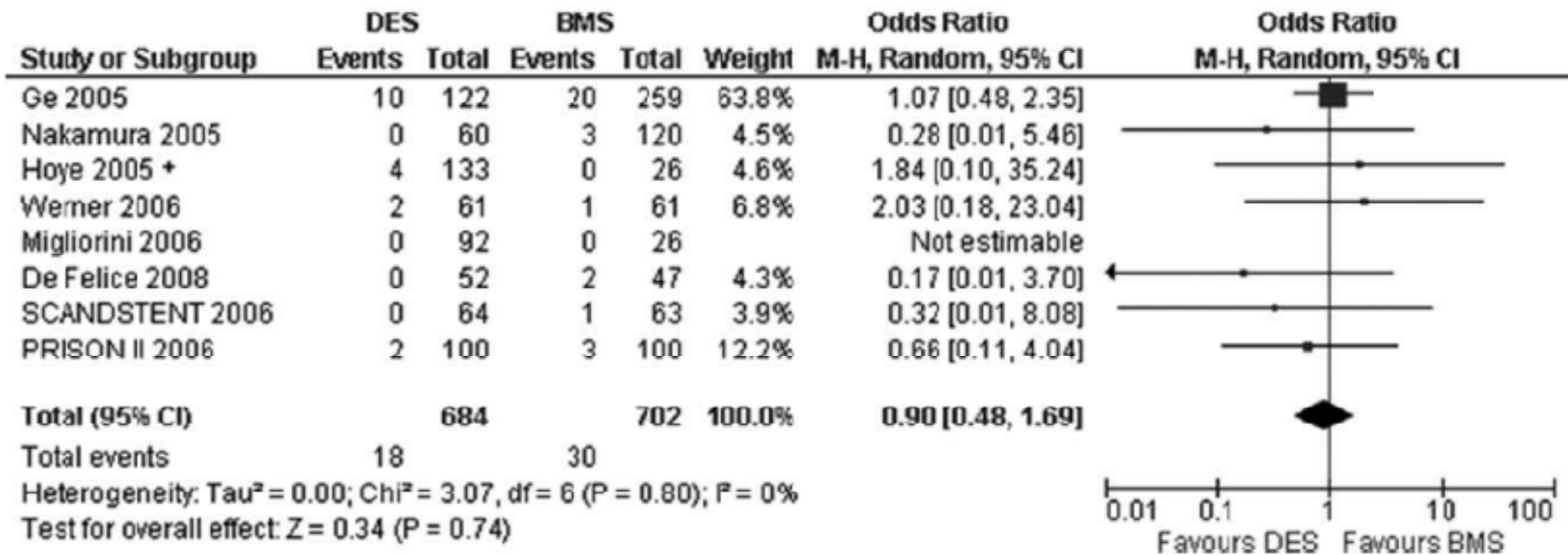


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

6-12 AYLIK SONUÇLAR

B

MİYOKARD İNFARKTÜSÜ

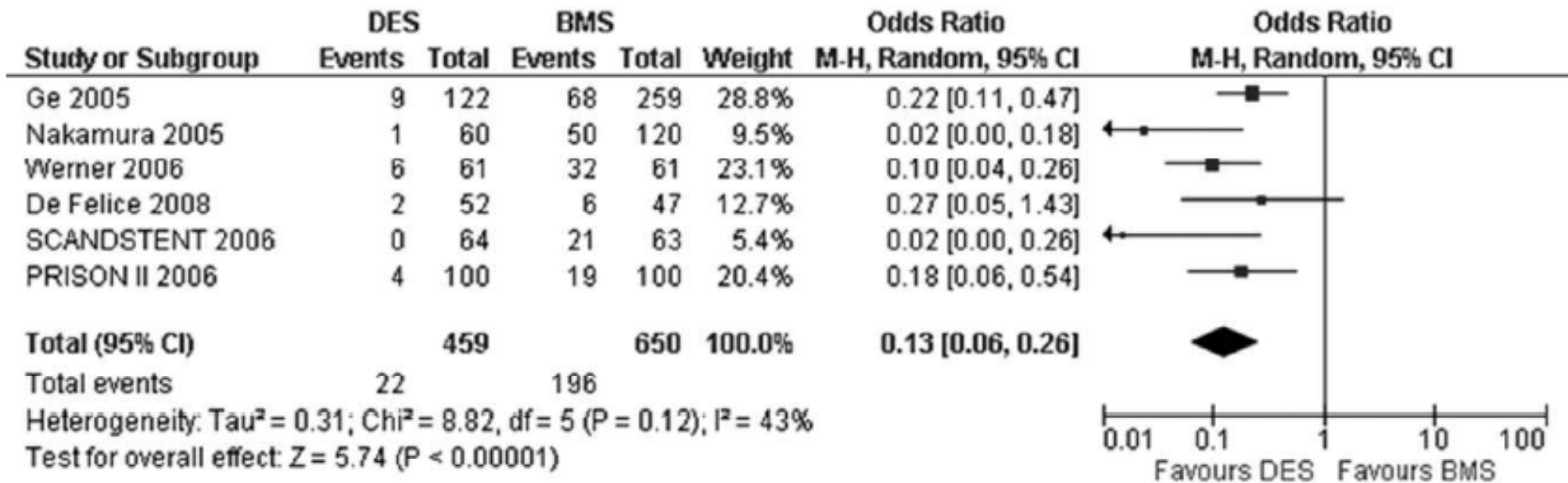


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

6-12 AYLIK SONUÇLAR

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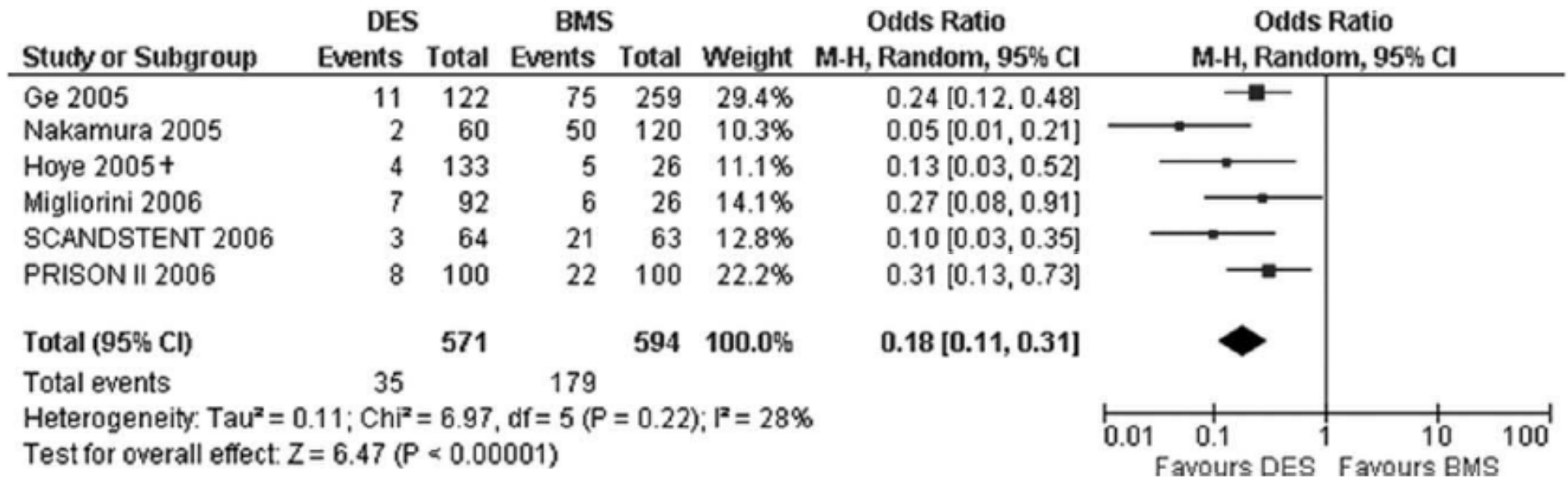
HEDEF LEZYON REVASKÜLARİZASYONU



Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

6-12 AYLIK SONUÇLAR

B HEDEF DAMAR REVASKÜLARİZASYONU

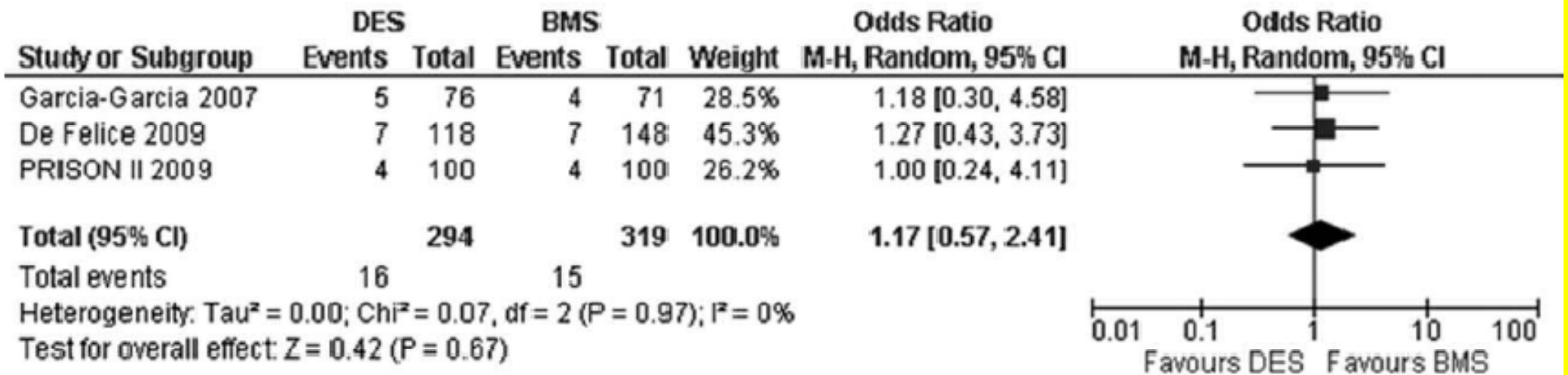


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

>36 AYLIK SONUÇLAR

A

ÖLÜM

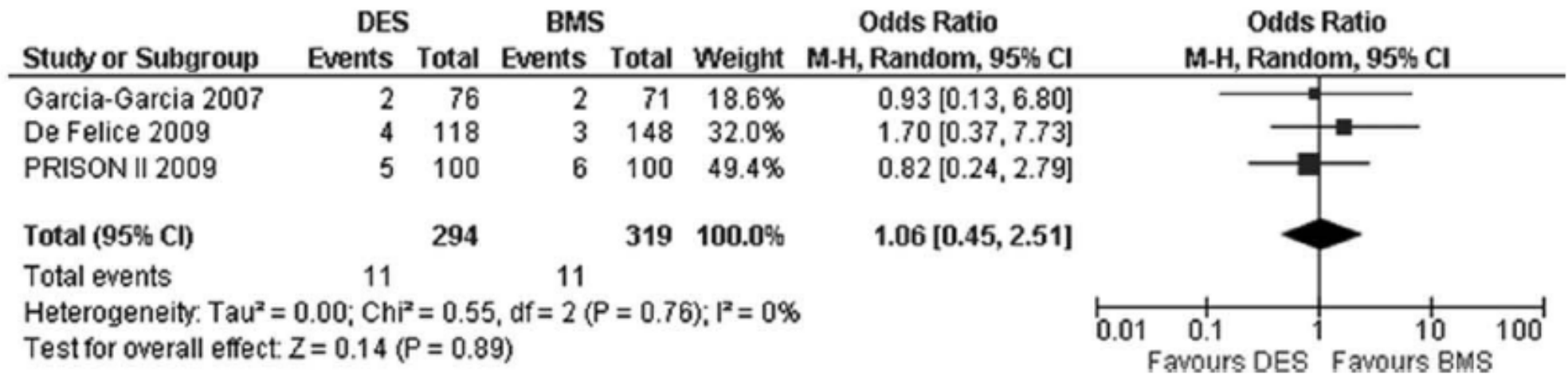


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

>36 AYLIK SONUÇLAR

B

MİYOKARD İNFARKTÜSÜ

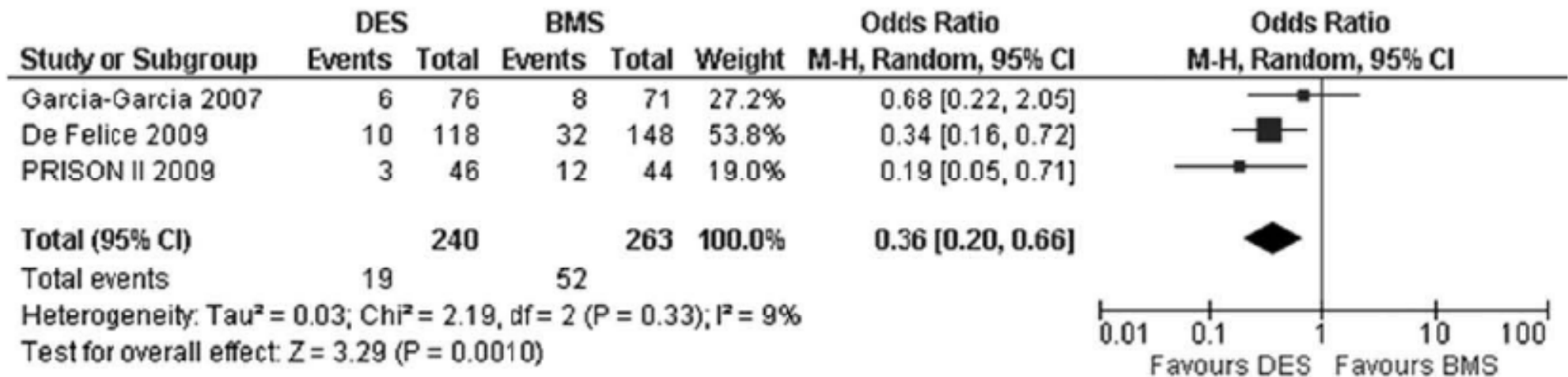


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>36 AYLIK SONUÇLAR

A

HEDEF LEZYON REVASKÜLARİZASYONU

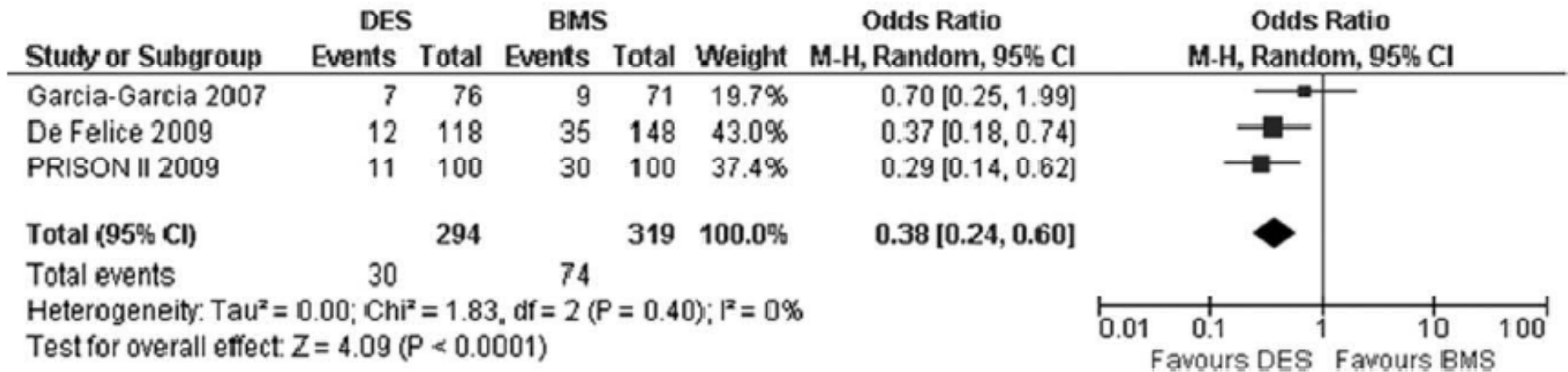


Use of Drug-Eluting Stents for Chronic Total Occlusions: A Systematic Review and Meta-analysis

>36 AYLIK SONUÇLAR

B

HEDEF DAMAR REVASKÜLARİZASYONU



DEVAM EDEN ÇALIŞMALAR

GISSOC II: Prospective Randomized Comparison of Sirolimus Eluting Stent Versus bare metal Stent in Chronic Total Occlusions

CIBELES: Non acute Coronary occlusion Treated By Everolimus Eluting Stent

Prison III: Randomized comparison of Sirolimus-eluting Stent Implantation with Zotarolimus-eluting Stent Implantation for the treatment of Chronic Total Coronary Occlusions

ACE-CTO: Angiographic evaluation of the Everolimus-eluting stent in Chronic Total Occlusions

SONUÇ

KTO da lezyonlar uzun ve komplekstir bu nedenle sıklıkla birden çok stente ihtiyaç olur, buna rağmen işlem başarısı gelişen cihazlarla artmaktadır.

KTO olguları uygun seçildiğinde klinik sonuçları olumlu etkilenmekte ve sağkalım artmaktadır.

İlaç kaplı stentler (İKS) restenoz, reoklüzyon, hedef damar ve lezyon revaskülarizasyonunu tartışmasız azaltmaktadır bu nedenle KTO da standart olarak İKS kullanımı önerilir.

Mİ ve ölüm oranlarında belirgin avantaj olmamasına rağmen sadece restenoz ve reoklüzyonun azalması da klinik sonuçları olumlu etkileyerek KTO da İKS kullanımını destekler.

Geç dönem stent trombozu nun olumsuz etkisi KTO grubunda hissedilmemektedir, belki de İKS lerin fayda/zarar oranının fayda yönünde en ağır bastığı altgrup KTO olabilir.

