



HIV ile Yaşayan Bireylerde Kardiyovasküler Hastalıklar

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ve Araştırma Hastanesi*

Future challenges for clinical care of an ageing population infected with HIV: a modelling study

Mikaela Smit, Kees Brinkman, Suzanne Geerlings, Colette Smit, Kalyani Thyagarajan, Ard van Sighem, Frank de Wolf, Timothy B Hallett, on behalf of the ATHENA observational cohort



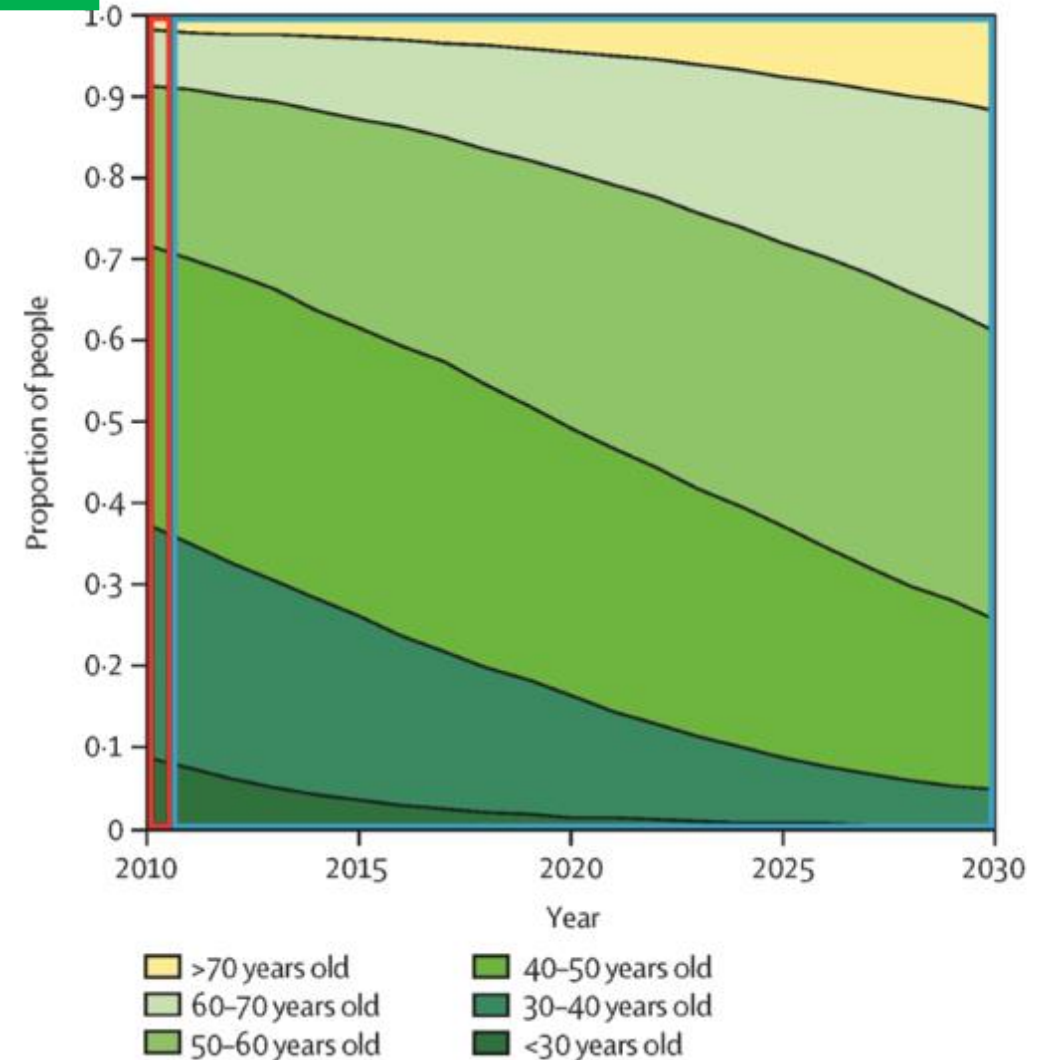
- **>50 yaş HİYB**

2010 → %28

2030 → %73

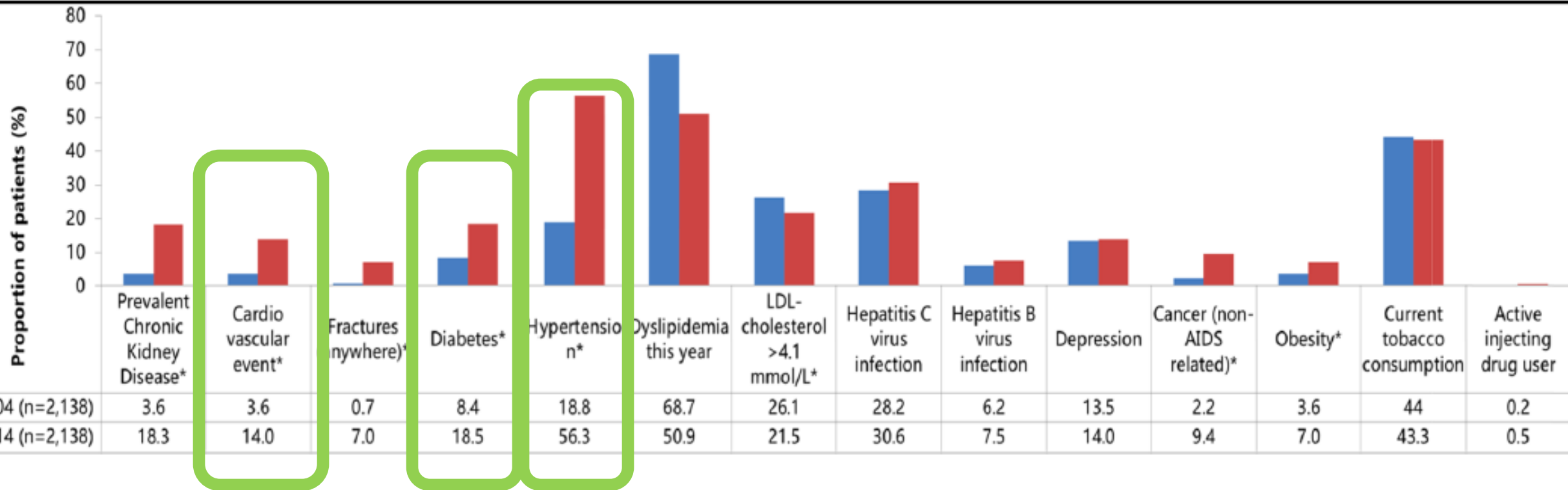
Modelleme çalışması →

2030 → HİYB ve KVVH %78



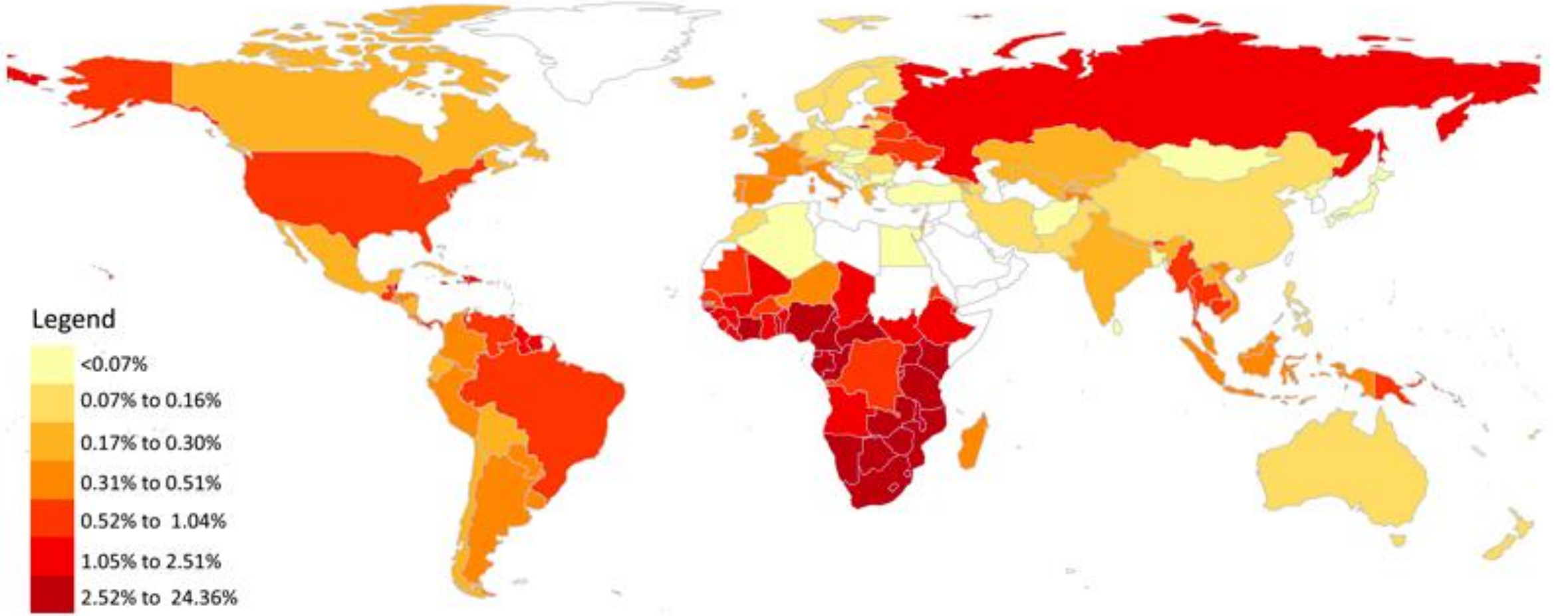
Kronik Komorbiditeter 2004-2014

ANRS CO3 Aquitaine Kohort



A

HIV ile İlişkili Kardiyovasküler Hastalık



Circulation. 2018 September 11;

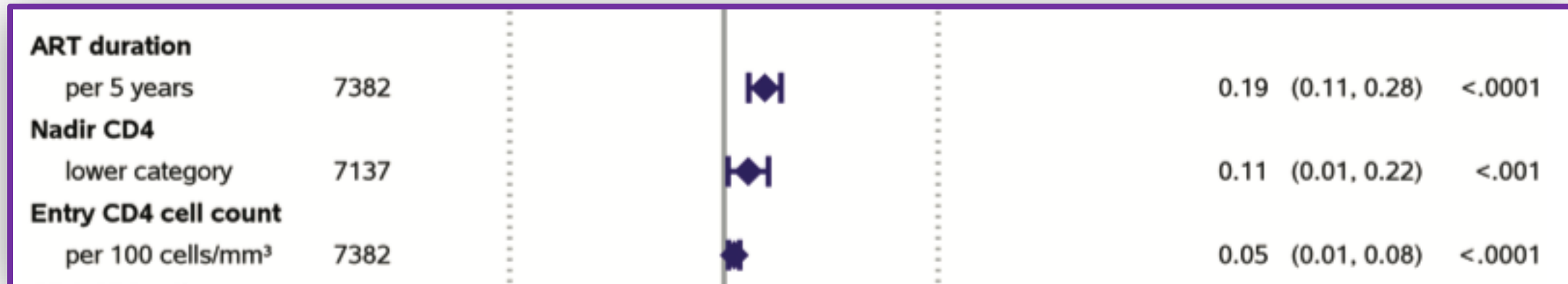
Global Burden of Atherosclerotic Cardiovascular Disease in People Living with the Human Immunodeficiency Virus: A Systematic Review and Meta-Analysis

- KVH geliştirme olasılığı→X2
- HIV ile ilişkili KVH küresel yükü son yirmi yılda→X3

Cardiovascular Risk and Health Among People With Human Immunodeficiency Virus (HIV) Eligible for Primary Prevention: Insights From the REPRIEVE Trial

Clinical Infectious Diseases

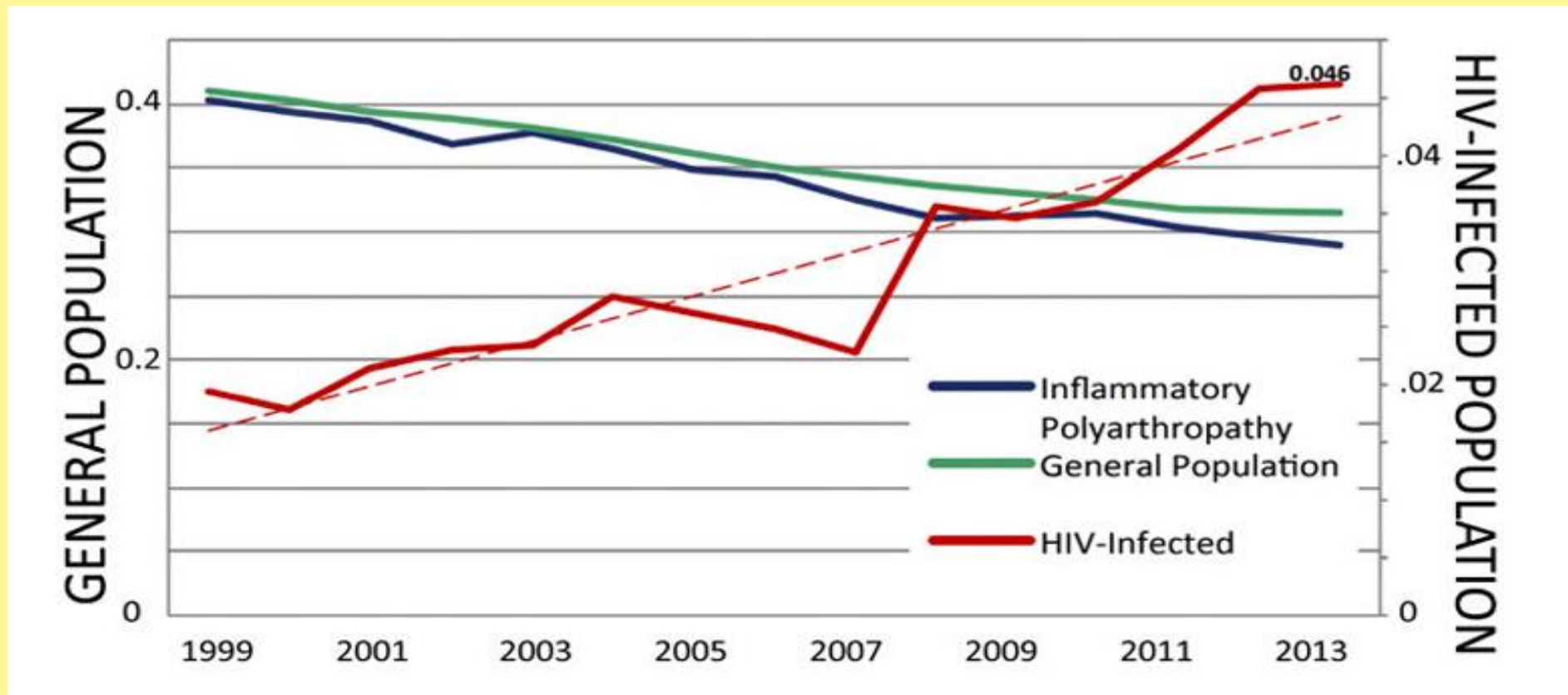
MAJOR ARTICLE



Patterns of Cardiovascular Mortality for HIV-Infected Adults in the United States: 1999 to 2013

- HIV ilişkili KVH ilişkili engellilik yaşam yılı
 - 1990-0.74 mily→2015-2.57 mily
- KVH ilişkili mortalite X2

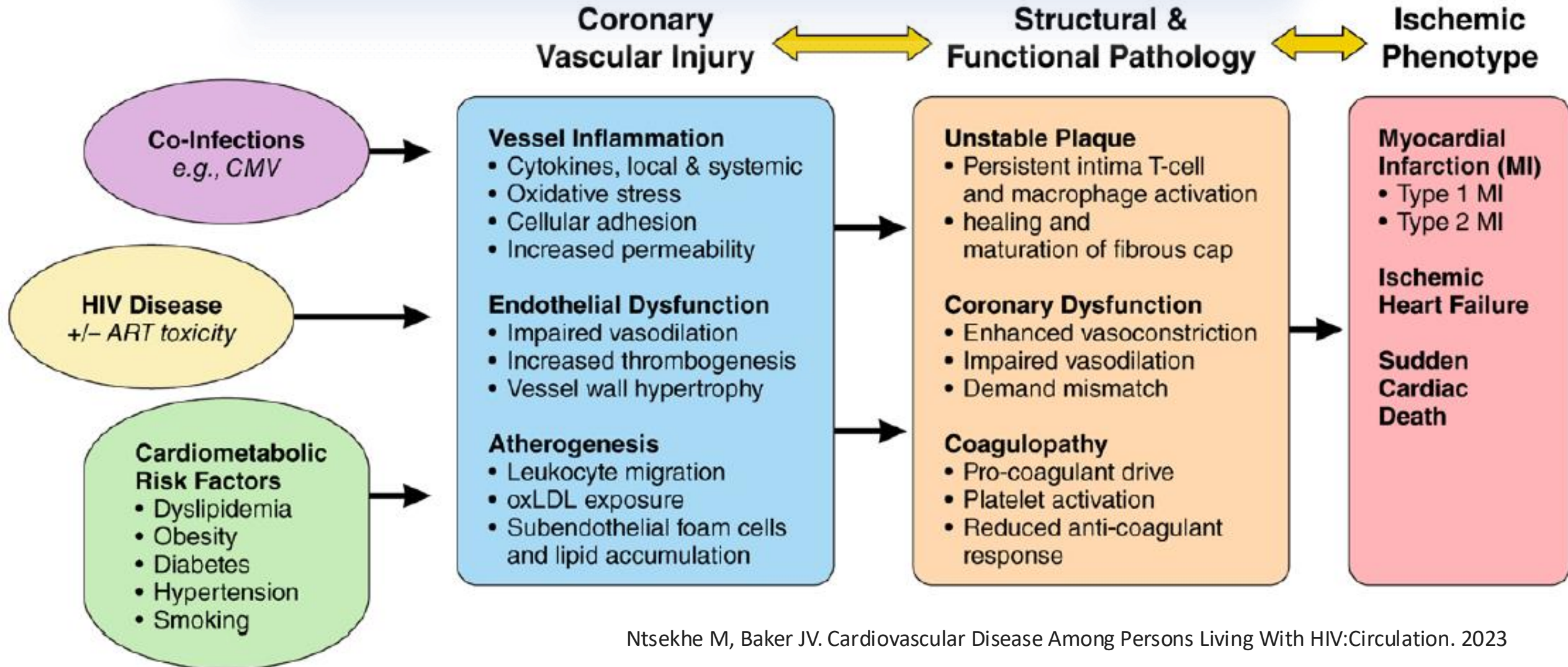
Am J Cardiol. 2016 January 15; 117(2): 214–220.



HIV ile Yaşayan Bireylerde Kardiyovasküler Hastalıklar (KVH)

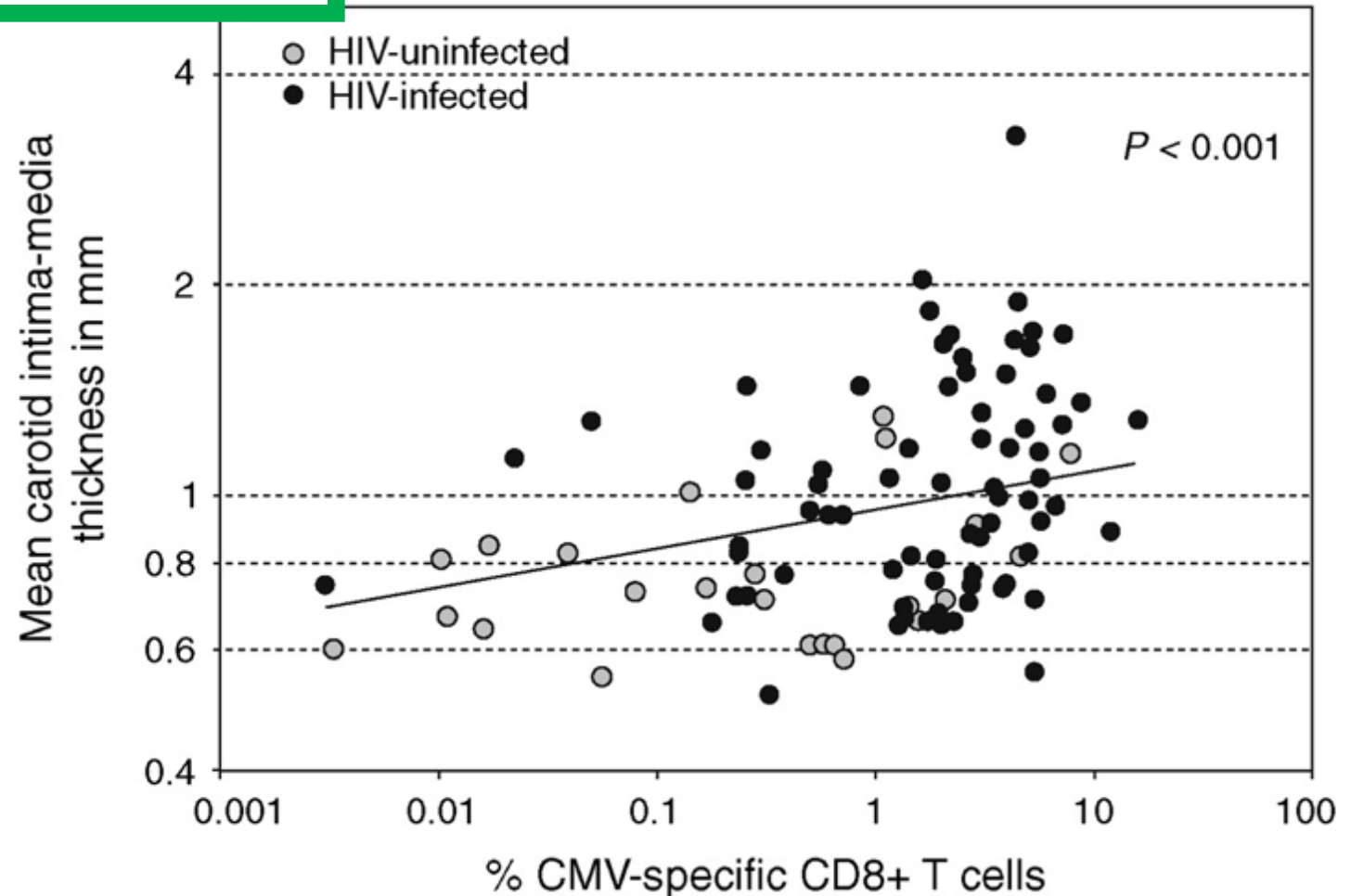
- Koroner Kalp Hastalığı
- Kalp Yetmezliği
- Ani Kardiyak Ölüm

HIV İlişkili KVH'nin Olası Mekanizmaları



Increased carotid intima-media thickness in HIV patients is associated with increased cytomegalovirus-specific T-cell responses

- HIV(+)/(-) karşılaştırmada, CMV'ye özgü T hücrelerinin yüzdesindeki her 10 katlık artış için karotis IMT'de %14'lük artış ($P < 0,001$).



HIV-1-Associated Atherosclerosis

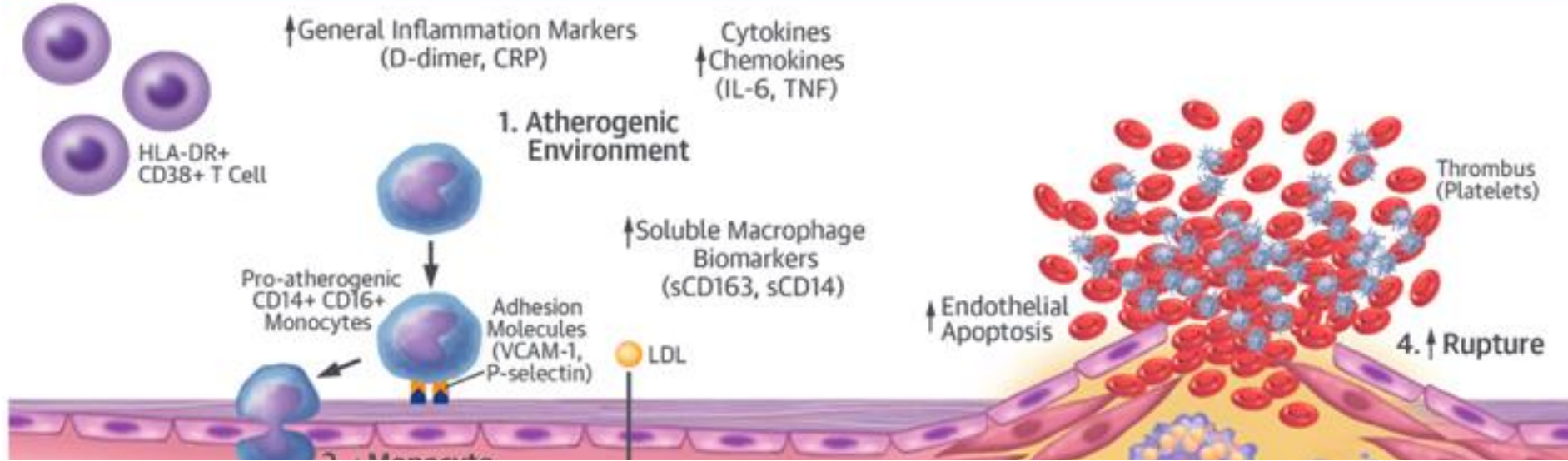
Unraveling the Missing Link

Alison Kearns, BS, Jennifer Gordon, PhD, Tricia H. Burdo, PhD, Xuebin Qin, MD, PhD

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY

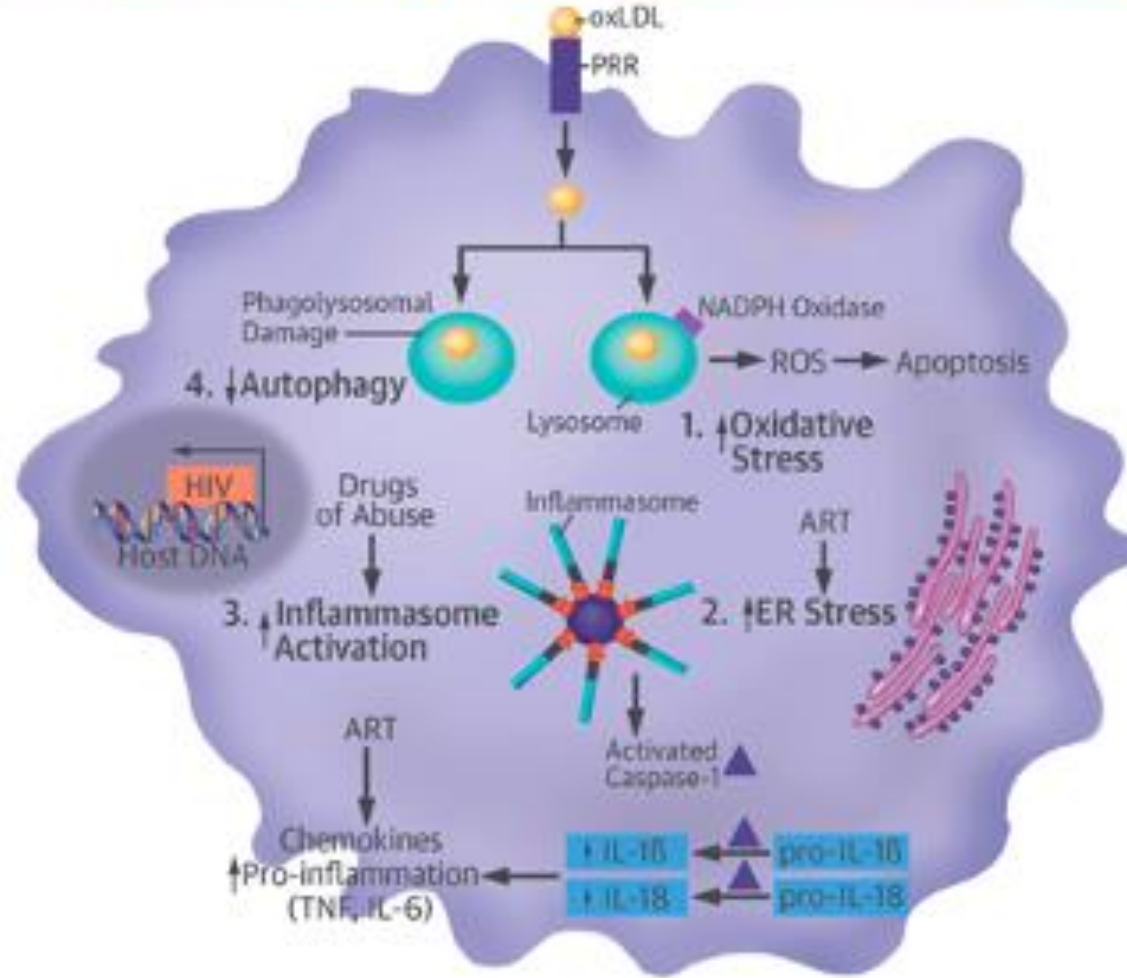
VOL. 69, NO. 25, 2017

A. Cellular Players in HIV-Associated Atherosclerosis



- Endotel inflamasyonu →
 - IL-6 ve monocyte chemoattractant protein-1 (MCP-1) ile direkt ilişkili
- Bu proteinler makrofajların köpük hücrelerine dönüşmesinde etkili
- Makrofajlar Nef proteininden etkilenir
- Nef proteini → Kolesterolün hücreden atılmasını etkiler
 - Köpük hücresi oluşumunu ve aterogenezi destekler

B. Molecular Mechanisms in HIV-Infected Macrophage Contributing to Atherogenesis



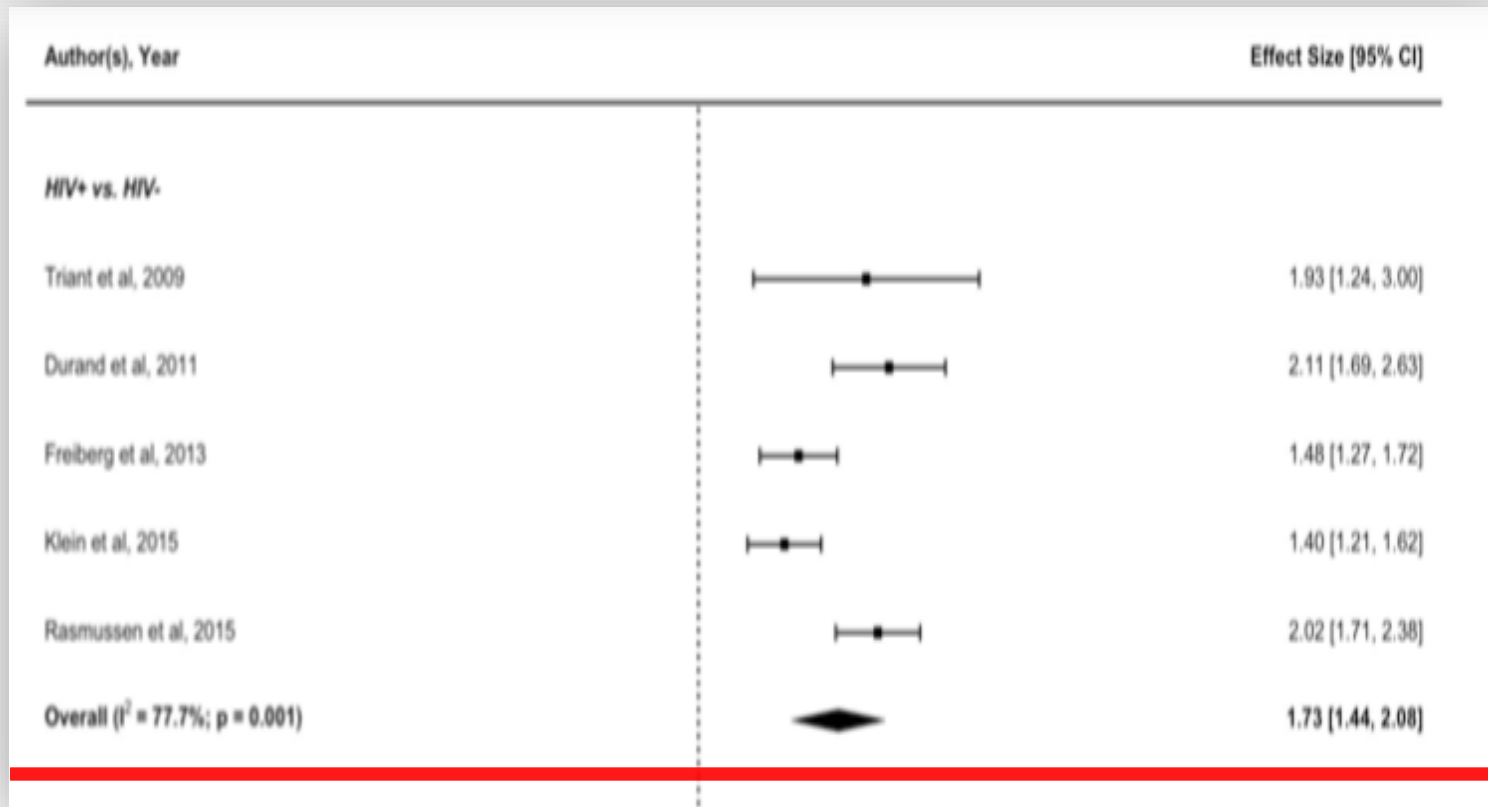
Kearns, A. et al. J Am Coll Cardiol. 2017;69(25):3084-98.

- Oksidatif stres ile NLRP3 inflamazomu aktiflenir, ve ER'de stres mg
- ER'de oksidatif stres oluşması aterogenezi destekler

HIV ve Tip 1 ve Tip 2 MI Farkı

- Tip 1 MI → Plak rüptürü ve aterotrombozla karakterize %50 HIV risk
- Tip 2 MI → Altta yatan ateroskleroz Ø
 - Uyuşturucu kullanımı vs nonkardiyojenik nedenler
 - Koroner mikrovasküler disfonksiyon
 - Kronik inflamasyon
 - Endotel aktivasyonu ve disfonksiyonu

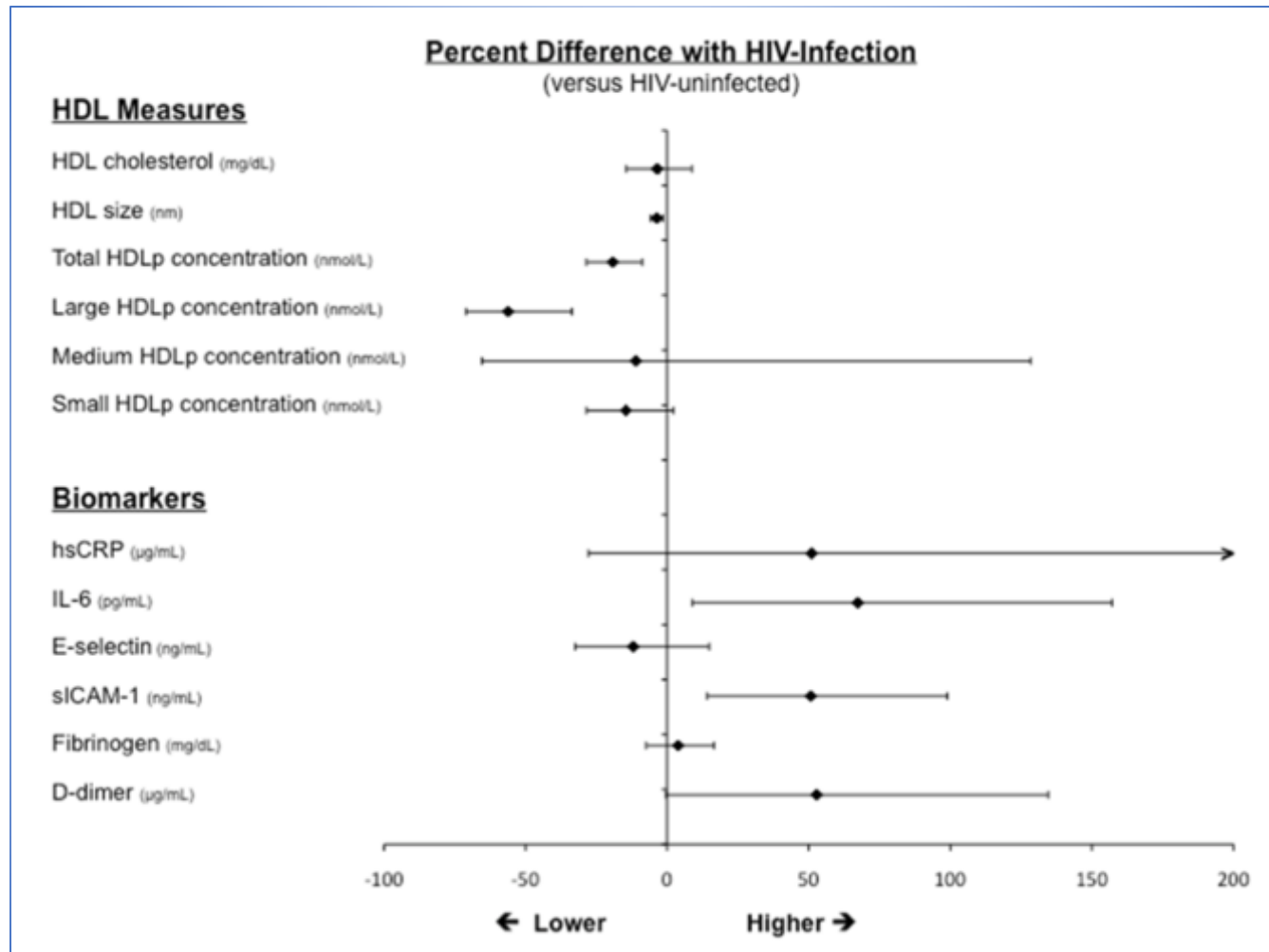
Risk of myocardial infarction among people living with HIV: an updated systematic review and meta-analysis



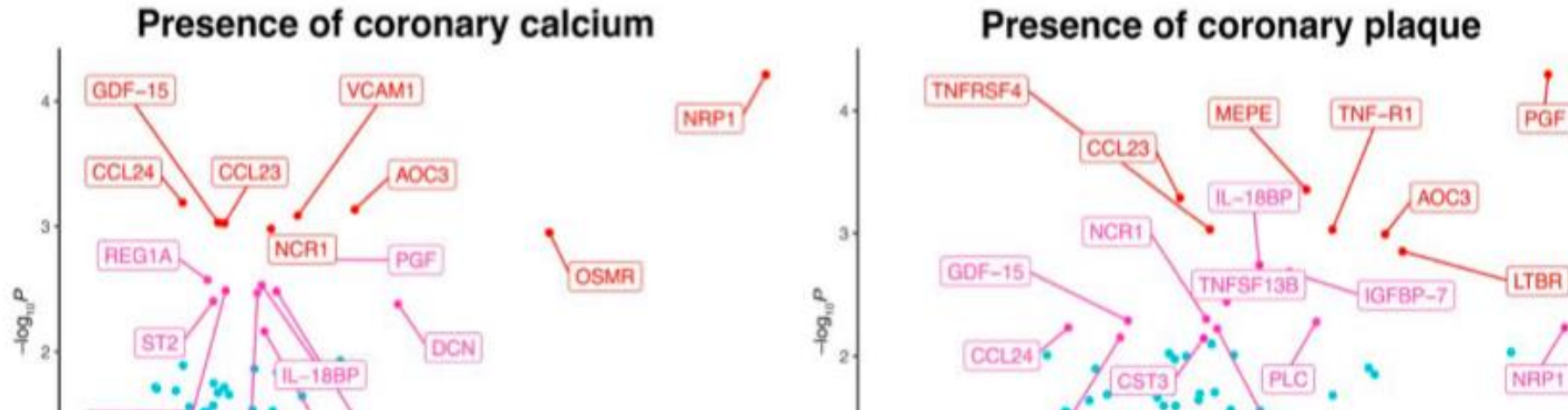
HIV (+) → 1,4-2,1 MI risk

High-Density Lipoprotein Particles and Markers of Inflammation and Thrombotic Activity in Patients with Untreated HIV Infection

- ART ∅ → HDL ↓, IL-6, ICAM-1, D-dimer ↑ → Atherosclerosis



Proteomic Signature of Subclinical Coronary Artery Disease in People With HIV: Analysis of the REPRIEVE Mechanistic Substudy



- KVH riski bilinmeyen HİVB'lerde 246 protein çalışılmış
- Kardiyovasküler, inflamatuvar ve immün yolaklarda etkili
- Koroner arter Ca ve koroner plak varlığı ile bu proteinlerin ilişkisi
- 662 HİVB (yaş 51 SD 6) ASCVD risk skor %4.9
- NRP1, AOC3, MEPE, ve PGF plak ve koroner Ca ve ASCVD ile yüksek risk korelasyonu
- NRP1: 5.1 (95% [CI], 2.3–11.4) →CAC ve 2.9 (95% CI, 1.4–6.1) → plak için en yüksek riskli protein

Inflammation, Coagulation and Cardiovascular Disease in HIV-Infected Individuals

Daniel A. Duprez^{1*}, Jacqueline Neuhaus¹, Lewis H. Kuller², Russell Tracy³, Waldo Belloso⁴, Stephane De Wit⁵, Fraser Drummond⁶, H. Clifford Lane⁷, Bruno Ledergerber⁸, Jens Lundgren⁹, Daniel Nixon¹⁰, Nicholas I. Paton¹¹, Ronald J. Prineas¹², James D. Neaton¹ for the INSIGHT SMART Study Group

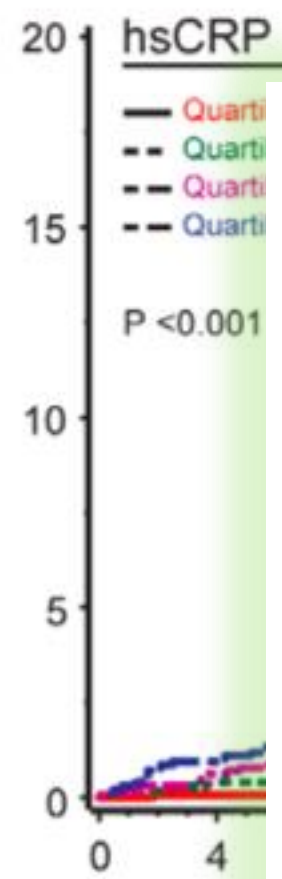
- SMART → hsCRP, IL-6 ve D-dimer KVVH ilişkisi
- 5098 katılımcı kan örnekleri
- 252 KVVH olan katılımcıda 29 ay takip
- IL-6, hsCRP and D-dimer KVVH ile ilişkili

Cumulative Percent with Event



IL-6

Cumulative Percent with Event



hsCRP

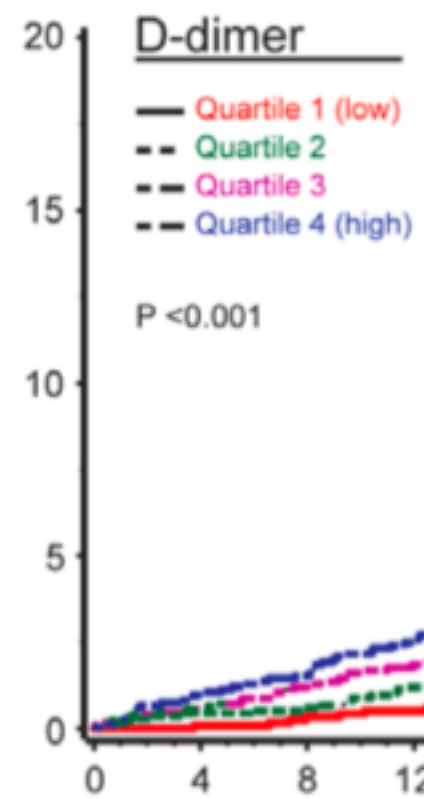
— Quartile 1 (low)
- - Quartile 2
- - Quartile 3
- - Quartile 4 (high)

P < 0.001

Q1: 126
Q2: 124
Q3: 126
Q4: 125

Q1: 1280 1272
Q2: 1265 1247
Q3: 1277 1261
Q4: 1273 1255

Cumulative Percent with Event



D-dimer

— Quartile 1 (low)
- - Quartile 2
- - Quartile 3
- - Quartile 4 (high)

P < 0.001

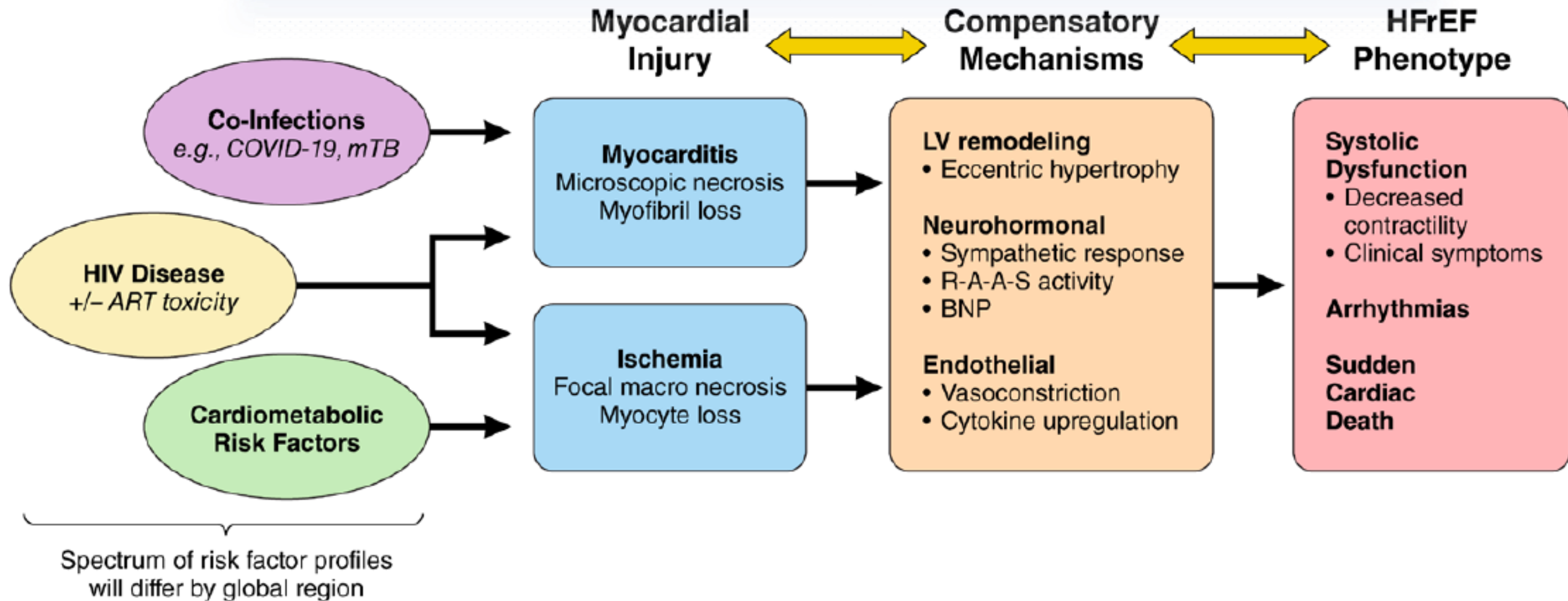
Months from Randomization

Q1:	1169	1161	1152	1145	1133	967	732	542	423	341	271	199	157
Q2:	1352	1337	1326	1312	1298	1117	879	669	529	433	358	274	215
Q3:	1254	1242	1225	1209	1192	1043	848	676	542	431	376	284	229
Q4:	1294	1269	1247	1223	1198	1071	923	746	610	511	428	303	250

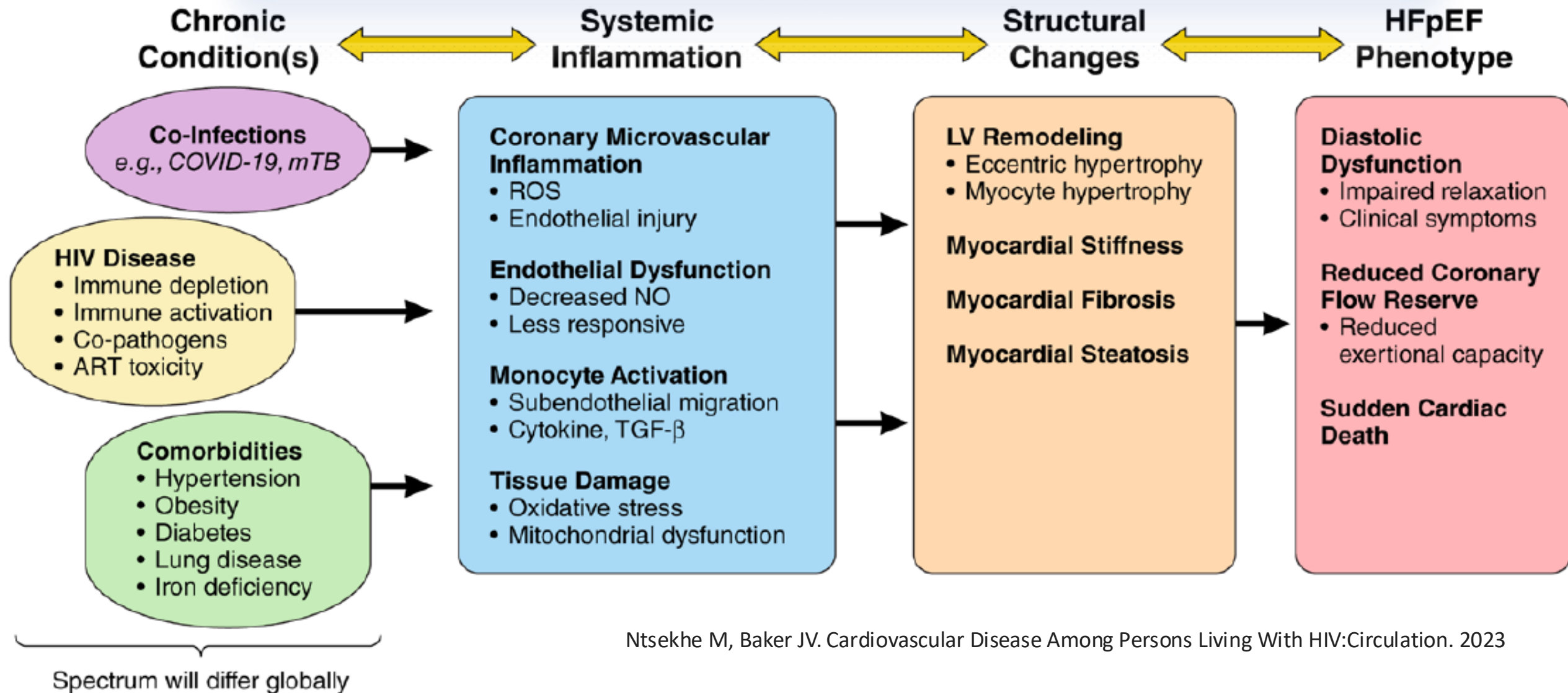
HIV ve Kalp Yetmezliđi (KY)

- ART öncesi dönemde HIV ilişkili KY sist. disfonk.
- Düşük CD4 düzeyi
- ART sonrası HIV ilişkili diast. disfonk.

HIV ve EF Azalmış Kalp Yetmezliği (KY)



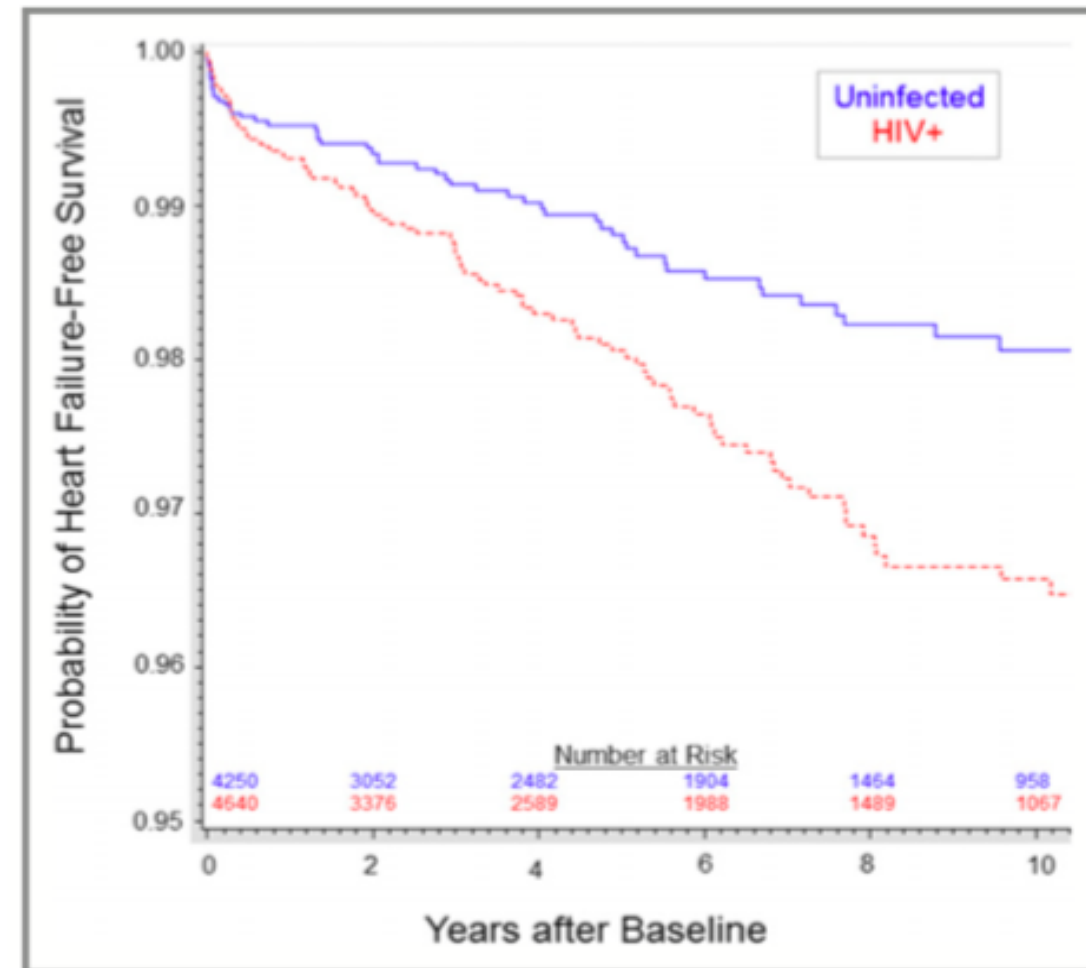
HIV ve EF Korunmuş Kalp Yetmezliği (KY)



Adjudicated Heart Failure in HIV-Infected and Uninfected Men and Women



- HIV ilişkili KY ↑
- ↑HIV RNA ve ↓ CD4
- KY → 97/ 4640 HIV (%2.1)
- Kontrol → 55/4250 (%1.3)
- HR → 2.10 (CI %95-1.38–3.21)



Human Immunodeficiency Virus and Heart Failure in Low- and Middle-Income Countries

JACC: HEART FAILURE VOL. 3, NO. 8, 2015

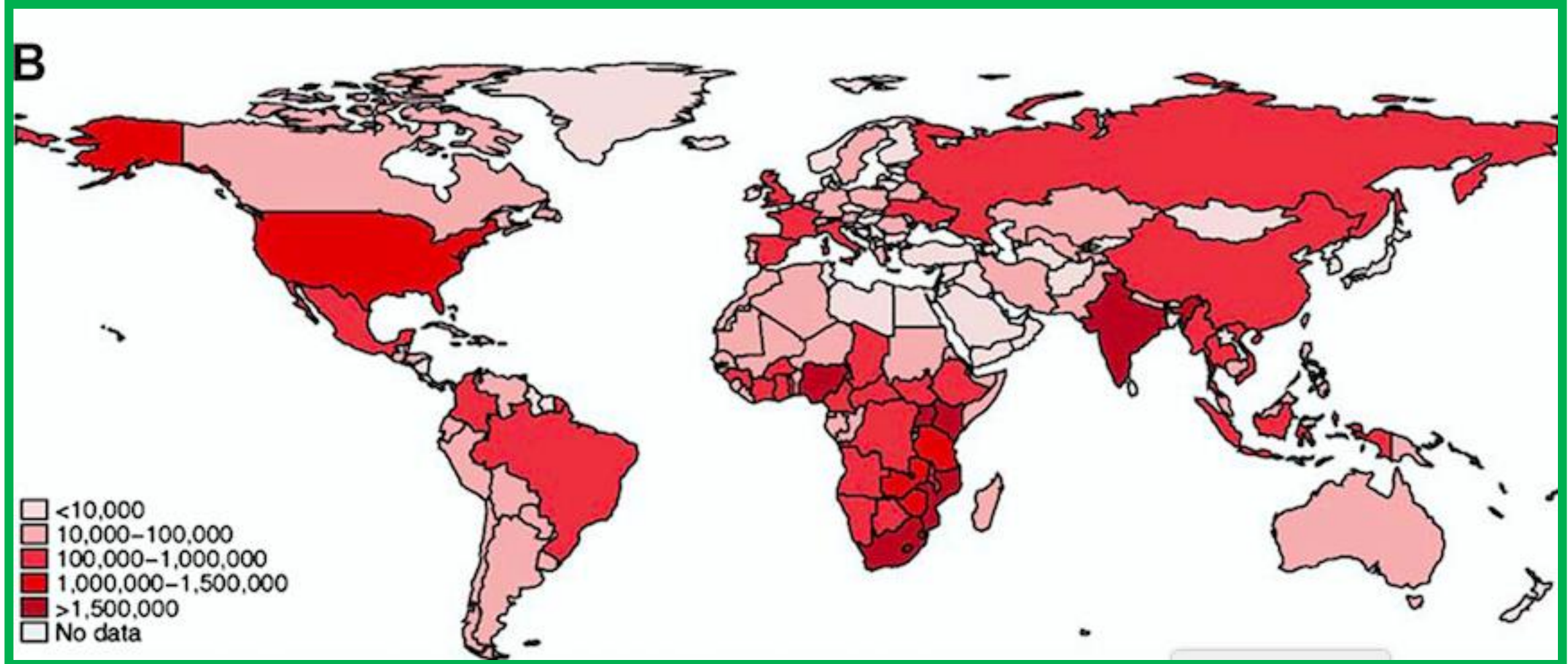
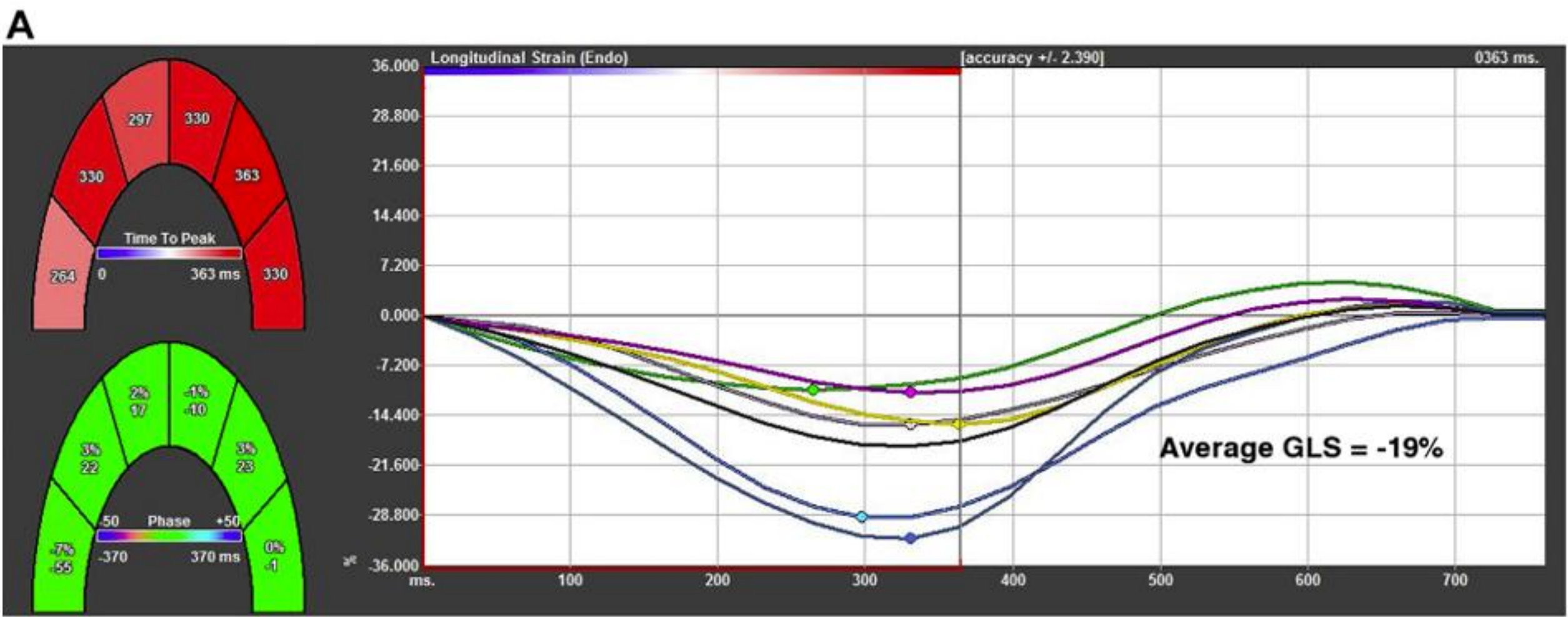
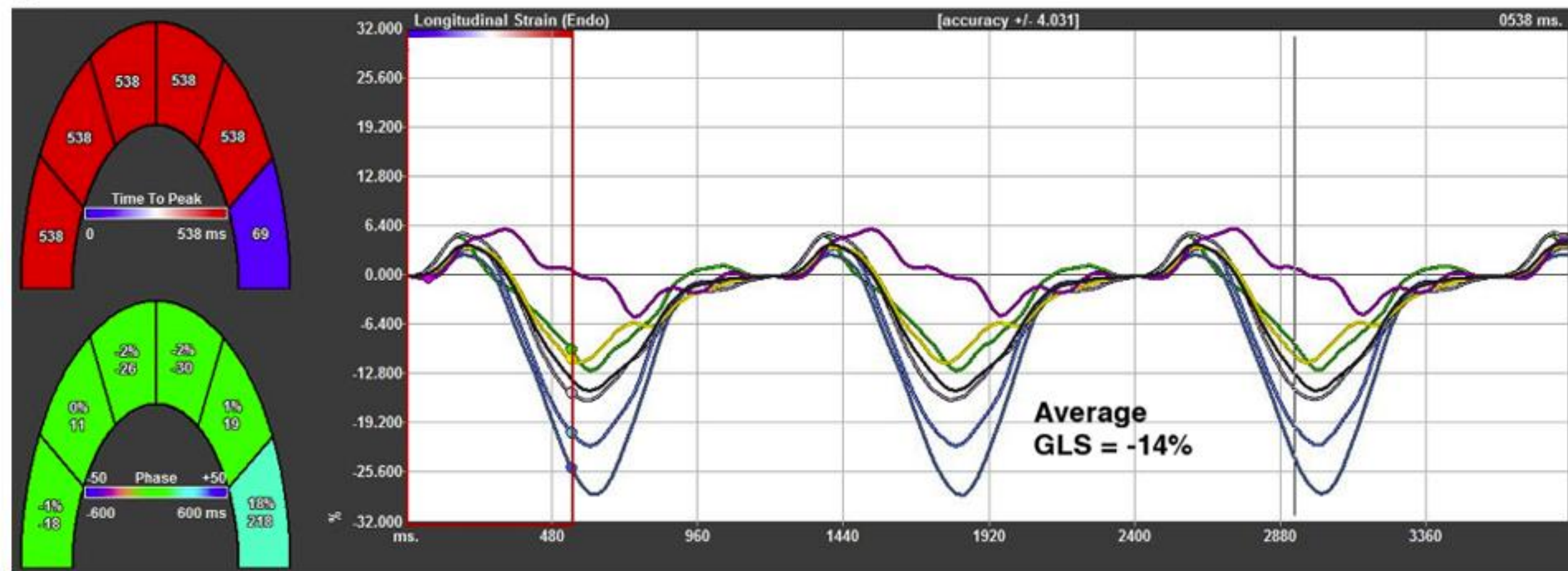


FIGURE 3 Myocardial Deformation Tracings in HIV-Infected Individuals With Normal LVEF



HIV→ Longitudinal sistolik kardiyak strain ile miyokardiyal deformasyon
MR→ Subklinik miyokardiyal fibrosis ve steatozis
Erken miyokardiyal disfonksiyon tespiti→ ↑ risk vaka tanımı

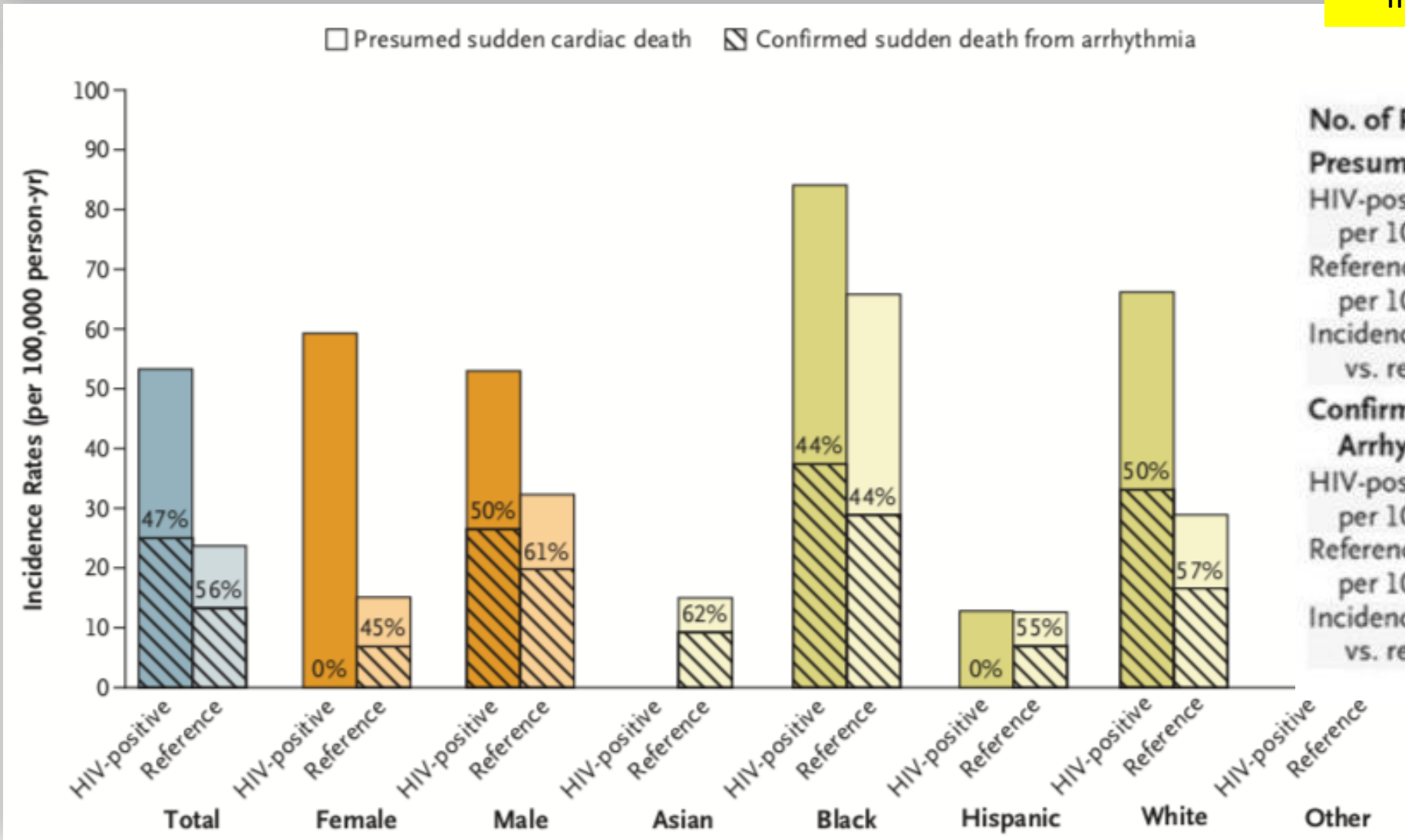
B



HIV ve Ani Kardiyak Ölüm

Sudden Cardiac Death and Myocardial Fibrosis Determined by Autopsy, in Persons with HIV

- San Francisco 2011-2016 HIV
- 2011-2014 Kontrol
- 100.000 kişi/yılı
- Aritmi ve ani ölüm
- Irk, etnik grup, cinsiyet



No. of Patients	47	505
Presumed Sudden Cardiac Death		
HIV-positive incidence rates —	53.3	
per 100,000 person-yr	(39.2–70.1)	
Reference incidence rates —	23.7	
per 100,000 person-yr	(21.7–25.9)	
Incidence rate ratio for HIV-positive vs. reference	2.25	(1.37–3.70)
Confirmed Sudden Death from Arrhythmia		
HIV-positive incidence rates —	25	
per 100,000 person-yr	(15.6–37.8)	
Reference incidence rates —	13.3	
per 100,000 person-yr	(11.8–15.0)	
Incidence rate ratio for HIV-positive vs. reference	1.87	(0.93–3.78)

N Engl J Med 2021;384:2306-16.

HIV-Positive Group

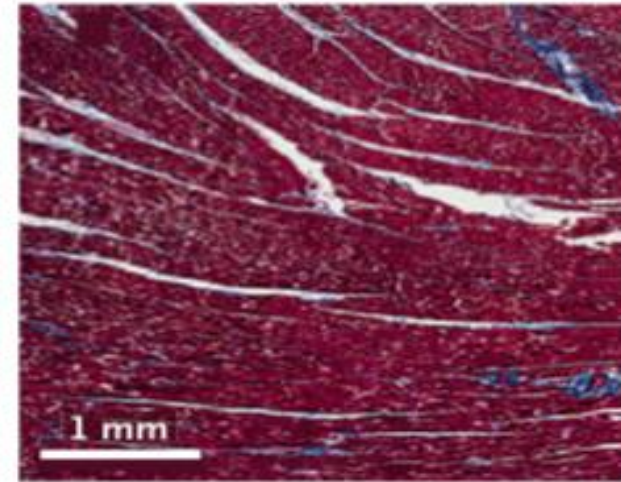
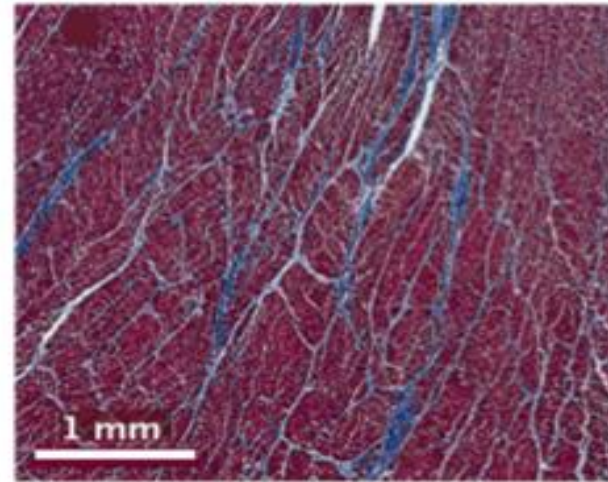
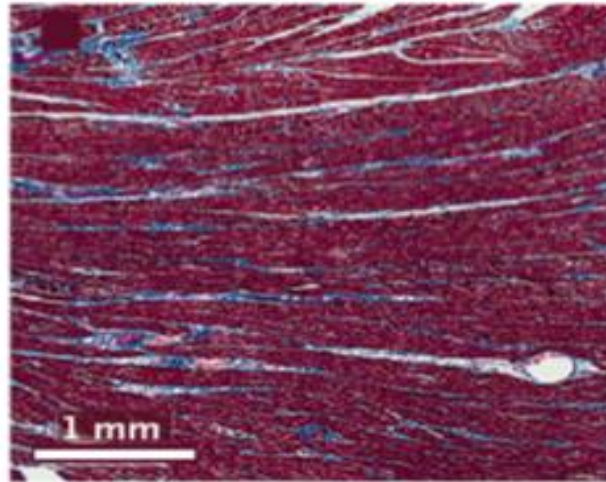
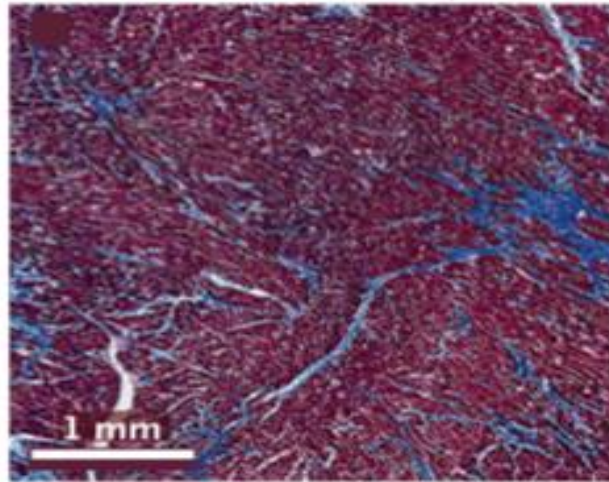
Reference Group

Sudden death from arrhythmia

Sudden death from nonarrhythmic cause

Sudden death from arrhythmia

Sudden death from nonarrhythmic cause



HIV-Positive Group, Presumed Sudden Cardiac Death (N=24)

Reference Group, Presumed Sudden Cardiac Death (N=164)

HIV-Positive Group vs. Reference Group, Presumed Sudden Cardiac Death

HIV-Positive Group, Presumed Sudden Cardiac Death (N=24)		Reference Group, Presumed Sudden Cardiac Death (N=164)		HIV-Positive Group vs. Reference Group, Presumed Sudden Cardiac Death	
Sudden death from arrhythmia (N=12)	Sudden death from nonarrhythmic cause (N=12)	Sudden death from arrhythmia (N=100)	Sudden death from nonarrhythmic cause (N=64)	Sudden death from arrhythmia	Sudden death from nonarrhythmic cause

mean percent fibrosis

percent difference (95% CI)

Total Fibrosis	12.5±6.4	8.7±7.5	72 (23 to 142)
	13.8±7.1		(7 to 198)
Interstitial and Perivascular Fibrosis	11.9±5.4		(8 to 185)
	1.9±3.4		(-20 to 75)

Presumed sudden cardiac deaths

HIV+/- → (34% vs. 13%).

HIV + → ↑ histolojik intertisyel miyokard fibrosis

Kardiyovasküler Risklerin Belirlenmesi

<40 yaş ise
kardiyovasküler
risklerin varlığını
tespit et

≥40 yaş ise 5-10 yıllık
kardiyovasküler
hastalık riskini
belirle

Risk modifikasyonu
yap

Resources > Clinical risk scores

Welcome to the Risk Assessment Tool System (RATS). Please select the desired values from the list below.

General

- ☐ EuroSida AIDS/Death risk score
- ☐ FENCE score
- ☐ ^{CSR}FENCE Score

Cardiovascular

- ☐ D:A:D (R) CVD 5 and 10 year risk score
- ☐ D:A:D (F) CVD 5 and 10 year risk score
- ☐ Framingham CVD 5 and 10 year risk score
- ☐ MI Number needed to harm

Build form

Rigshospitalet, University of Copenhagen
CHIP, Section 2100
Blegdamsvej 9, DK-2100 Copenhagen, Denmark

CVR no.: 29190623
VAT no.: DK29765790
Follow us on:



1. Age: yr ▾

2. Gender: ☐ Male ☐ Female

3. Previous smoker? ☐ Yes ☐ No

4. Smoker? ☐ Yes ☐ No

5. Family CVD history? ☐ Yes ☐ No

6. Diabetes? ☐ Yes ☐ No

7. Abacavir treatment? ☐ Yes ☐ No

8. PI exposure: yr ▾



ASCVD Risk Estimator Plus

Estimate Risk

Current Age ⓘ *

Age must be between 20-79

Sex *

Male

Female

Race *

White

African American

Other

Systolic Blood Pressure (mm Hg) *

Value must be between 90-200

Diastolic Blood Pressure (mm Hg) *

Value must be between 60-130

Total Cholesterol (mg/dL) *

Value must be between 130 - 320

HDL Cholesterol (mg/dL) *

Value must be between 20 - 100

LDL Cholesterol (mg/dL) ⓘ ○

Value must be between 30-300

History of Diabetes? *

Yes

No

Smoker? ⓘ *

Current ⓘ

Former ⓘ

Never ⓘ

On Hypertension Treatment? *

Yes

No

On a Statin? ⓘ ○

Yes

No

On Aspirin Therapy? ⓘ ○

Yes

No

Do you want to refine current risk estimation using data from a previous visit? ⓘ ○

Yes

No

Risk of geographic region ⓘ

Low risk

Moderate risk

High risk

Very high risk

Gender

Male

Female

Age

40 - 69

years

Current smoking



Systolic blood pressure ⓘ

100 - 200

mmHg

mmol/L

mg/dL

Total cholesterol

3 - 9

mmol/L

HDL-cholesterol ⓘ

0.7 - 2.5

mmol/L

LDL-cholesterol ⓘ

0.1 - 9

mmol/L

Risk of geographic region ⓘ

Low risk

Moderate risk

High risk

Very high risk

Gender

Male

Female

Age

70 - 90

years

Current smoking



Diabetes mellitus ⓘ



Systolic blood pressure ⓘ

100 - 200

mmHg

mmol/L

mg/dL

Total cholesterol

3 - 9

mmol/L

HDL-cholesterol ⓘ

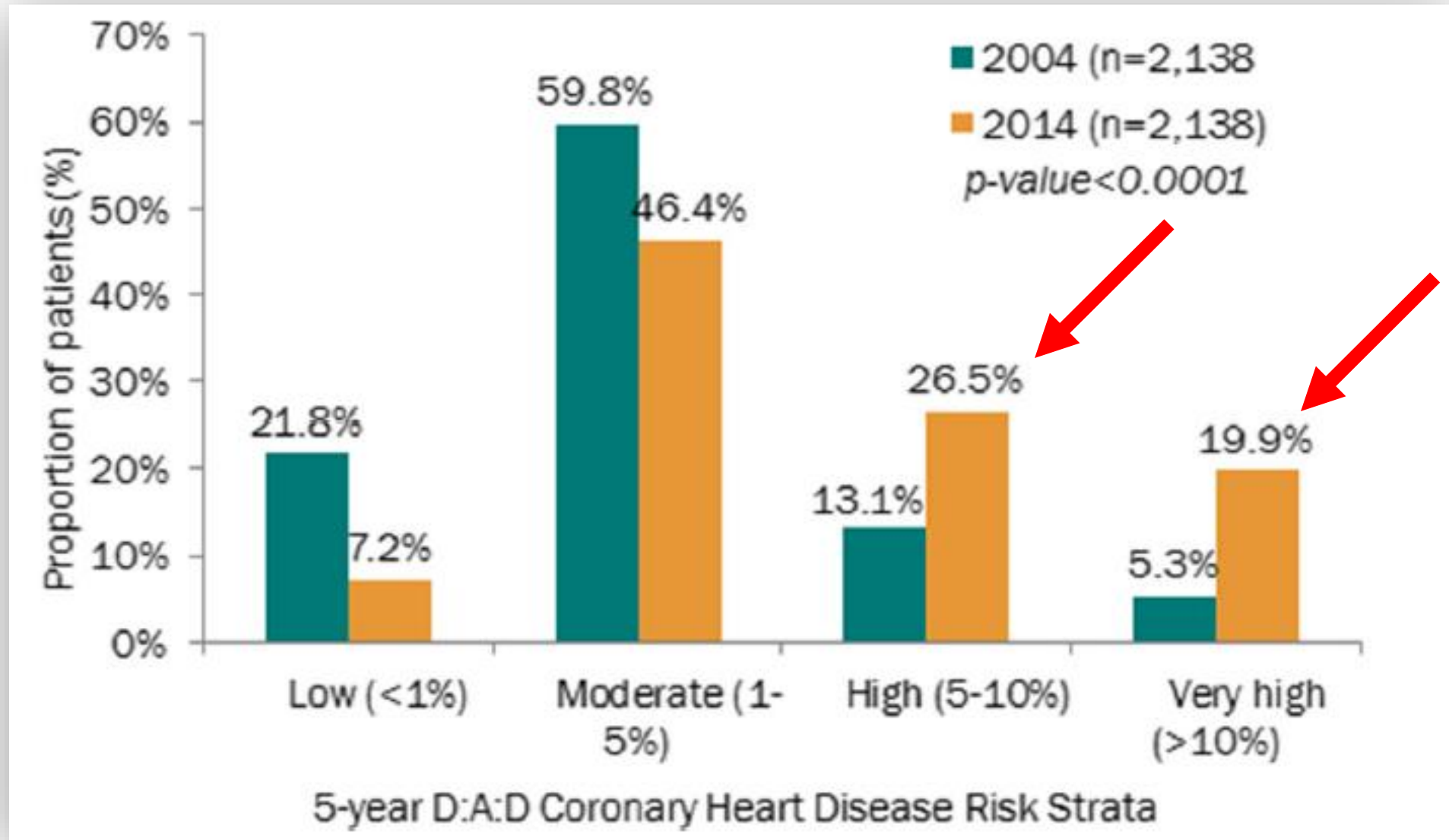
0.7 - 2.5

mmol/L

LDL-cholesterol ⓘ

0.1 - 9

mmol/L



Comparison of Risk Category Predictions of Framingham Risk Score (FRS), Atherosclerotic Cardiovascular Disease Risk Score (ASCVD), Systematic Coronary Risk Evaluation (SCORE) and Data Collection on Adverse Events of Anti-HIV Drugs (D:A:D) Score in HIV-Infected Patients

Korten V¹, Gökengin D², Yıldırım T³, Inkaya AC⁴, Fincancı M⁵, Yagci Caglayık D¹, Mermut G², Sirmsek F³, Eren G⁶, Unal S⁴

¹Infectious Diseases, Marmara University Hospital, İstanbul, Turkey, ²Infectious Diseases, Ege University Hospital, İzmir, Turkey, ³Infectious Diseases and Clinical Microbiology, Okmeydanı Training and Research Hospital, İstanbul, Turkey, ⁴Infectious Diseases, Hacettepe University, Ankara, Turkey, ⁵Infectious Diseases and Clinical Microbiology, İstanbul Education and Research Hospital, İstanbul, Turkey

FRAMINGHAM - CVD (N=527)	Low Risk (≤10%) n (%)	Moderate Risk (>10% - ≤20%) n (%)	High Risk (>20%) n (%)	
Framingham score	273 (51.8)	173 (32.6)	81 (15.4)	
Framingham score with ARF*	268 (50.9)	152 (28.8)	107 (20.3)	
SCORE (N=527)	Low Risk (<1%) n (%)	Moderate Risk (≥1% - <5%) n (%)	High Risk (≥5% - <10%) n (%)	Very High Risk (≥10%) n (%)
Score	88 (16.7)	173 (32.6)	107 (20.3)	159 (30.1)
Score with ARF*	81 (15.4)	152 (28.8)	107 (20.3)	188 (35.5)
ASCVD (N=527)	Low Risk (<7.5%) n (%)	Moderate Risk (≥7.5% - <20%) n (%)	High Risk (≥20%) n (%)	
ASCVD score	365 (69.3)	152 (28.8)	107 (20.3)	
ASCVD score with ARF*	335 (63.6)	152 (28.8)	140 (26.6)	
DAD-Ful (N=527)	Low Risk (<5%) n (%)	High Risk (≥5%) n (%)		
DAD-F score	387 (73.4)	140 (26.6)		
DAD-Reduced (N=527)	<5% n (%)	≥5% n (%)		
DAD-R score	381 (72.3)	146 (27.7)		

* ARF = Additional Risk Factors: Framingham (DM, ASCVD, LDL cholesterol ≥ 190 mg/dL or DM), Score (DM or GFR < 60 mL/min or total cholesterol > 240 mg/dL or blood pressure ≥ 160/110 mmHg)

Çok merkezli kesitsel çalışma

Temmuz 2016- Şubat 2017, 5 merkez, 40-74 yaş arasında KVH olmayan, statin almayan hastalar

Yüksek KVH skor prevelansı %20.3 ile %36.3

667 hastanın 527 si değerlendirilmiş

%82'si erkek, ortanca yaş: 48

%11 erken başlangıçlı KVH aile öyküsü

%50 sigara içici

%22 HT

%8 DM

Prevalence of cardiovascular disease (CVD) and Comparison of risk category predictions of Systemic Coronary Risk Evaluation Score-2 (SCORE2) and four other CVD risk calculators among people living with HIV(PLWH) in Türkiye

Tukenmez Tigen, E¹; Gökengin, D²; Özkan Özdemir, H³; Akalın, H⁴; Kaya, B⁵; Deveci, A⁶; İnan, A⁷; İnan, D⁸; Altunsoy, A⁹; Özel, A.S¹⁰; Karaoğlu, İ¹¹; Eraksoy, H¹²; Demirdal, T¹³; Yıldırım, T¹⁴; Birengel, S¹⁵; İnci, A¹⁶; Nazlı, A¹⁷; Kayaaslan, B⁹; Sayın Kutlu, S¹⁸; Ataman Hatipoğlu, Ç¹⁹; Esen, Y²⁰; Koç, T²⁰; Korten, V¹; and HIV-TR Study Group

- Çok merkezli kesitsel çalışma, 2019-2021
- **20 merkez, 1425 hasta**, %82.7 erkek, >40 yaş, ortalama yaş 51
- **%10.6 tanılı KHV**
- Ortanca CD4 : 696 h/μl



Participant Characteristics	Median (IQR) or proportion (n=1425)
Age, y, median (IQR)	51 (45-58)
Male, Sex	1178 (82.7)
Smoking (current smoker)	651 (45.7)
Alcohol use (1-7 or >7 drinks/week)	411 (28.9)
IV non-prescription drug use	35 (2.5)
Exercise & physical activity	248 (17.4)
Body mass index	
Obese (≥30 kg/m ²)	258 (18.3)
Diabetes mellitus	242 (17)
Hypertension	420 (29.5)
Hypercholesterolemia	498 (34.9)
Family history of premature cardiovascular disease	102 (7.2)
Family history of CAD (in parents)	310 (21.1)
Years since HIV diagnosis, median (IQR)	5.0 (2.0-9.0)
Cumulative months of ART use, median (IQR)	
Protease Inhibitor	218 (15.3)
Nucleoside Reverse Transcriptase Inhibitor	1390 (97.5)
Others	1325 (93)
Nadir CD4 ⁺ cell count, cells/μL, median (IQR)	318 (168-480)
Nadir CD4<200 cells/μL	424 (29.8)
Current CD4 ⁺ cell count, cells/μL, median (IQR)	696 (479-920)
Viral load, <200 copies/mL	1345 (94.4)

Kardiyovasküler Risk Hesaplayıcıları:

- Framingham Risk Skoru (**FRS**)
- Modifiye Framingham Risk Skoru (**Modified FRS**)
- Avrupa Kardiyovasküler Risk Değerlendirme Skoru 2 (**SCORE2***)
- Data Collection on Adverse Effects of Anti-HIV Drugs Cohort (**D:A:D**)
- Aterosklerotik kardiyovasküler risk skoru (**ASCVD**)

Prevalence of Cardiovascular Disease and Comparison of Risk Category Predictions of Systemic Coronary Risk Evaluation Score-2 and 4 Other Cardiovascular Disease Risk Assessment Tools Among People Living with Human Immunodeficiency Virus in Türkiye

ABSTRACT

Background: Cardiovascular disease (CVD) is a major cause of mortality among people living with HIV (PLWH). We aimed to assess the prevalence of diagnosed CVD and the risk of CVD among PLWH using 5 different tools.

Methods: This retrospective, cross-sectional study was conducted in 20 tertiary centers in Türkiye between October 2021 and March 2022, among 1425 PLWH aged 40-75 years. About 82.7% were male, with a median age of 51. Web-based tools for each score were used for CVD risk calculations.

Results: Of 1425 PLWH enrolled, 10.8% had confirmed CVD, and 1132 had their risk scores evaluated. Of those participants, 42.8% had a higher risk of CVD (10-year risk of atherosclerotic CVD risk score (ASCVD) above 7.5%), and according to the European Society of Cardiology systemic coronary risk evaluation 2 (SCORE2), 71.7% had a high- to very high-risk rate. The agreement between various CVD risk tools varied, with Framingham heart study risk score (FRS), modified FRS, data collection on adverse effects of anti-HIV drugs (DAD), and SCORE2 for high-risk countries showing overall agreement rates of 82%, 94%, 91%, and 36%, respectively, compared to ASCVD. According to the 2021 European and 2019 American Cardiology guidelines, 75.3% and 47.1% of PLWH would be eligible for lipid-lowering agents, respectively.

Conclusion: The diagnosed CVD prevalence highlighted the importance of monitoring cardiovascular health and comorbidities in this population. SCORE2 identified a greater number of individuals at high/very high risk compared to other prediction tools. The implementation of CVD prevention through lipid-lowering therapy was far from desired levels in our cohort.

Keywords: Human immunodeficiency virus, cardiovascular disease, cardiovascular risk

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HIV-TR Study Group

KVH risk faktör prevalansı:

- %50 sigara kullanımı
- %26 Hiperlipidemi,
- %22 Hipertansiyon,
- %16.5 obezite,
- %8 DM
- %11 ailesel KVH öyküsü

Korten et al 2017

Lipid düşürücü ajan için uygun kişiler:

- ESC--> %21.8
- AHA--> %36.4

KVH Risk faktör prevalansı:

- %45.7 sigara kullanımı
- **%34.9 Hiperlipidemi,**
- **%29.5 Hipertansiyon,**
- **%18.3 obezite,**
- **%17 DM**
- %7.2 ailesel KVH öyküsü

Tigen et al 2021

Lipid düşürücü ajan için uygun kişiler

- ESC--> %75.3
- AHA--> %47.1

HIV ile Yaşayan Bireyde Kardiyovasküler Risk yönetimi

10 yıllık kardiyovasküler hastalık riski hesapla



Tüm kişilere yaşam tarzı değişiklikleri öner,
10 yıllık KVH riski ≥ 10 olanlarda ART modifikasyonu



Modifiye edilebilecek risk faktörlerini belirle



Sigara

Kan basıncı

Koagülasyon

Kan şekeri

Lipidler



Sigarayı bırak
Davranışçı
tedavi
Farmakoterapi

KB $\geq 140/90$
mmHg ise (öz.
KVH riski > 10)
ilaç tedavisi

Bilinen KVH
varsa, DM + yüksek
KVH riski varsa

DM tanısını
doğrula ve tedavi
et

KVH riski ≥ 10 veya
Tip 2 DM veya bilinen
KVH varsa ilaç
tedavisi



Hedef SKB < 130 ,
DKB < 80 mmHg

75-150 mg ASA

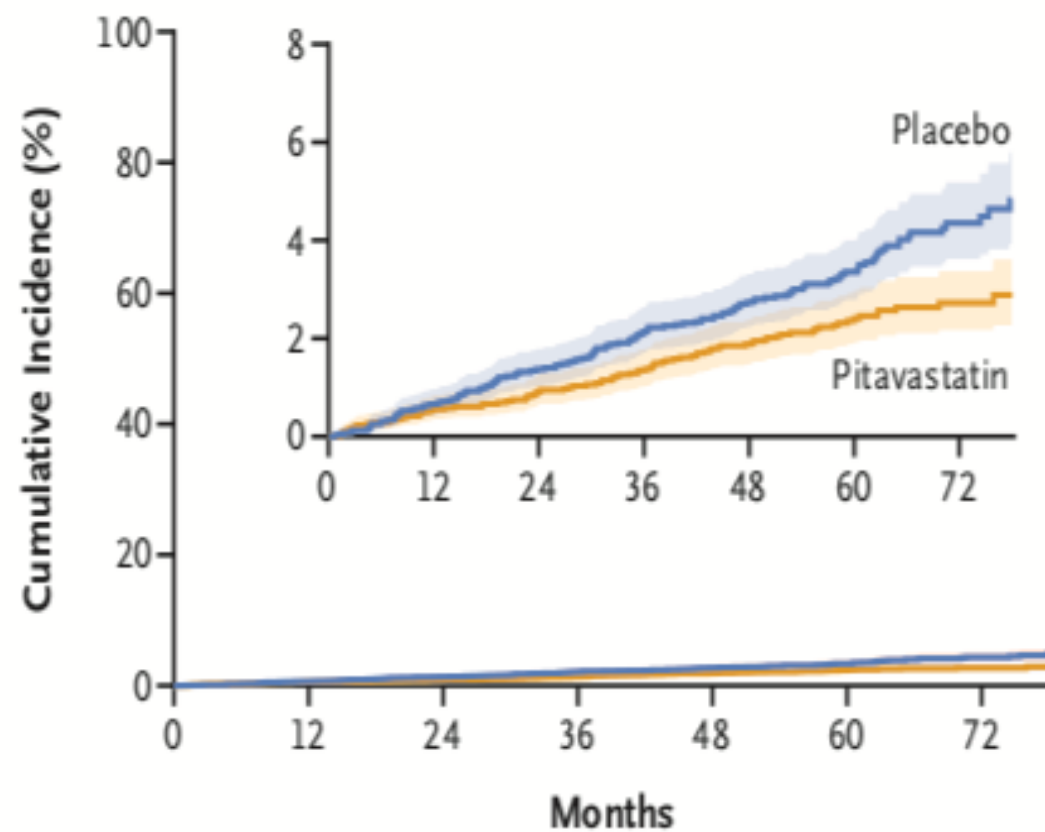
Hedef
AKŞ 80-130
mg/dL
HbA1c
 $< 6.5-7$

Hedef :
LDL-K < 70 , Non-HDL < 100
Çok yüksek risk LDL-K < 55 ,
Non-HDL < 85

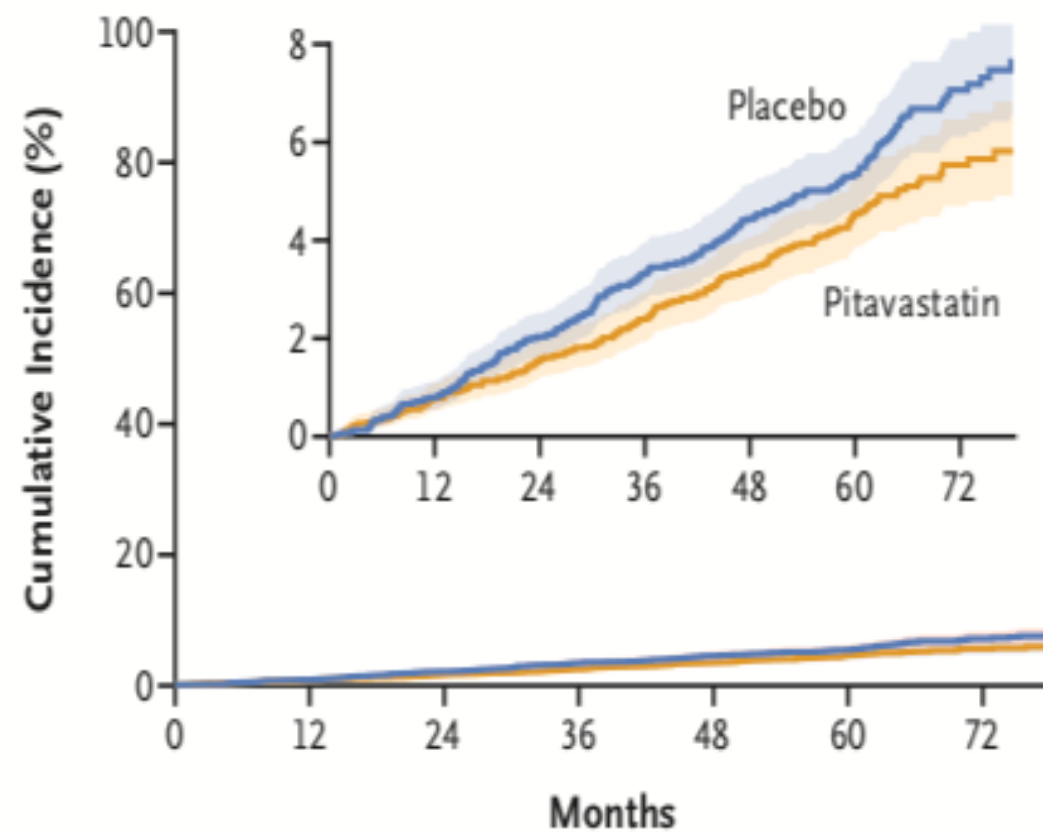
Pitavastatin to Prevent Cardiovascular Disease in HIV Infection

- 7769 HiYB → düşük orta KVH riski
- ART
- Pitavastatin 4 mg/ plasebo
- Major kardiyovasküler olay (kardiyovasküler ölüm, MI, unstable anjina, stroke, geçici iskemi, revaskülarizasyon, ölüm)
- Çalışma 5.1 yılda erken sonlandırıldı
- Pitavastatin kolu majör kardiyovasküler olay belirgin az
- 4.81 /1000 hasta yılı pitavastatin
- 7.32 /1000 hasta yılı plasebo (hazard ratio, 0.65; 95% [CI], 0.48- 0.90; P=0.002)

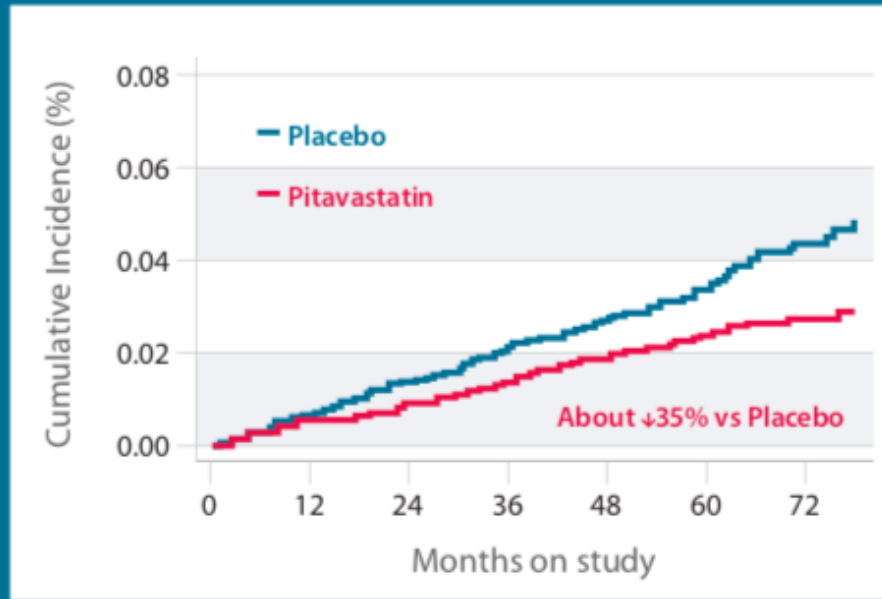
B First MACE



C First MACE or Death

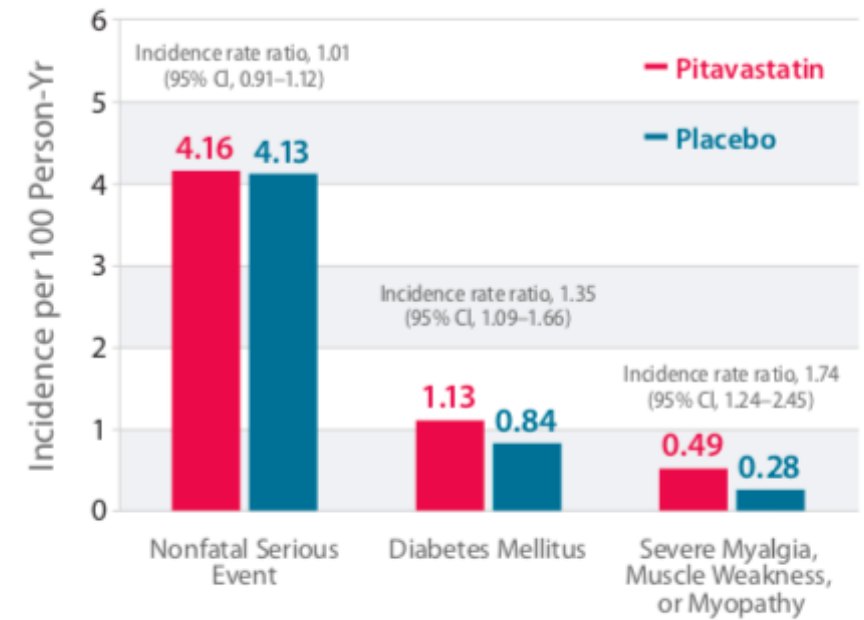


Time to major adverse cardiovascular event (like first heart attack or stroke)



Pitavastatin reduced the incidence of the primary endpoint, major adverse cardiovascular events (MACE), by 35% compared to placebo over an average of approximately 5 years of follow up.

Adverse events diagnosed during study period



Adverse events were similar between participants taking pitavastatin vs. placebo.

- Diabetes rates increased in the pitavastatin group, however pitavastatin reduced major adverse cardiovascular events even among PWH with diabetes.
- Muscle-related symptoms were higher in the pitavastatin group but were mostly mild and only 1% withdrew for muscle-related symptoms.

Conclusion

In PWH at low-to-moderate traditional risk for cardiovascular disease, pitavastatin is safe, effective and prevents major adverse cardiovascular disease events like heart attack and stroke.

DHHS Güncellemesi – 27 Şubat 2024

Date: February 27, 2024

Source ClinicalInfo

The Department of Health and Human Services Guidelines Panel for the Use of Antiretroviral Agents in Adults and Adolescents with HIV (the Panel) has developed recommendations for the use of statin therapy in people with HIV, in collaboration with representatives from the American College of Cardiology (ACC), the American Heart Association (AHA), and the HIV Medicine Association.

With continuous antiretroviral therapy (ART) and viral suppression, most people with HIV achieve a life expectancy close to that of people without HIV. However, there remains a mortality gap primarily due to cardiovascular disease and cancer. REPRIEVE, a large randomized controlled trial among people with HIV aged 40 to 75 years who were receiving ART and had low-to-intermediate risk of atherosclerotic cardiovascular disease (ASCVD), showed that when compared to placebo, pitavastatin 4 mg daily was associated with a 35% reduction in major adverse cardiovascular events over a median follow-up duration of 5 years. The recommendations below are endorsed by the organizations listed above.

For people with HIV who have low-to-intermediate (<20%) 10-year ASCVD risk estimates:

- Age 40–75 years
 - When 10-year ASCVD risk estimates are 5 to <20%, the Panel recommends initiating at least moderate intensity statin therapy **(AI)**.
 - Recommended options for moderate intensity statin therapy include:
 - Pitavastatin 4mg once daily **(AI)**
 - Atorvastatin 20mg once daily **(AII)**
 - Rosuvastatin 10mg once daily **(AII)**

STATİNLERİN YETİŞKİNLERDE KULLANIM İLKELERİ

PRAVASTATİN,ATORVASTATİN,ROSUVASTATİN

LDL DÜZEYİ	RİSK FAKTÖRÜ	TETKİK SONUCU
190 mg/dL'nin üstünde	Gerek yok	En az bir hafta ara ile iki ölçüm olmalı
160 mg/dL'nin üstünde	<u>İki Ek Risk Faktörü</u>	En az bir hafta ara ile iki ölçüm olmalı
130 mg/dL'nin üstünde	<u>Üç Ek Risk Faktörü</u>	En az bir hafta ara ile iki ölçüm olmalı
70 mg/dL'nin üstünde	▪ Diabetes Mellitus, ▪ Akut Koroner Sendrom, ▪ Geçirilmiş Mİ, ▪ Geçirilmiş İnme, ▪ Koroner Arter Hastalığı, ▪ Periferik Arter Hastalığı, ▪ Abdominal Aort Anevrizması ▪ Karotid Arter Hastalığı Olanlar	TEK tetkik sonucu yeterli.

Pitavastatin(1-4 mg)-Atorvastatin (10-20 mg)- Rozuvastatin (10 mg)

Ayakta Raporsuz	 Ödenmez
Ayakta Raporlu	 Uzman Hekim Raporu
Raporun Düzenleneceği Sağlık Kurumu	Tüm sağlık kuruluşları
Raporu Düzenleyecek Hekimler	Yetişkinler: Uzman hekim Çocuklarda: Çocuk metabolizma hastalıkları, çocuk endokrinolojisi ve metabolizma hastalıkları, çocuk kardiyolojisi uzman hekimi
Rapora İstinaden Reçete Yazabilecek Hekimler	Tüm hekimler

