HODGE PODGE 2019

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Mclaren Bay Regional Heart and Vascular

DISCLOSURE

In the past 12 months, received a speaker honorarium from Amigen and Jansen

Hyperlipidemia

Accepted Manuscript

2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol

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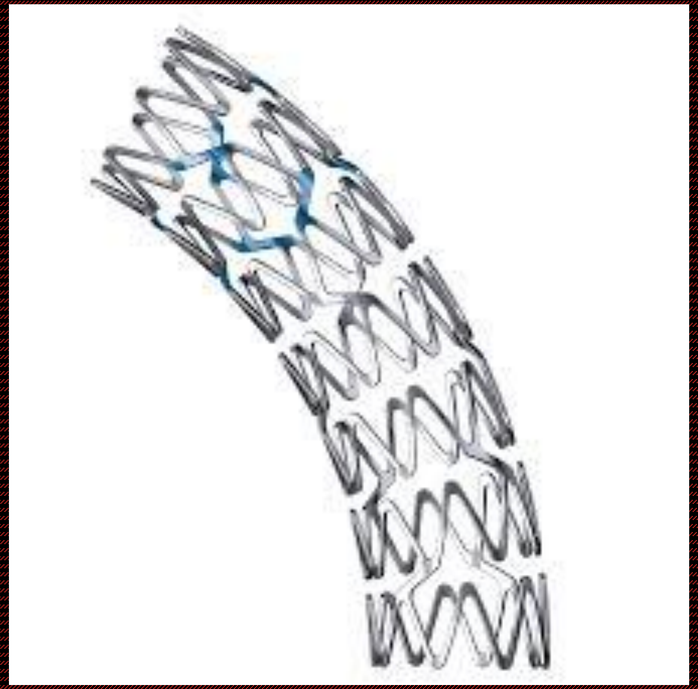
SIZE OF TREATMENT EFFECT

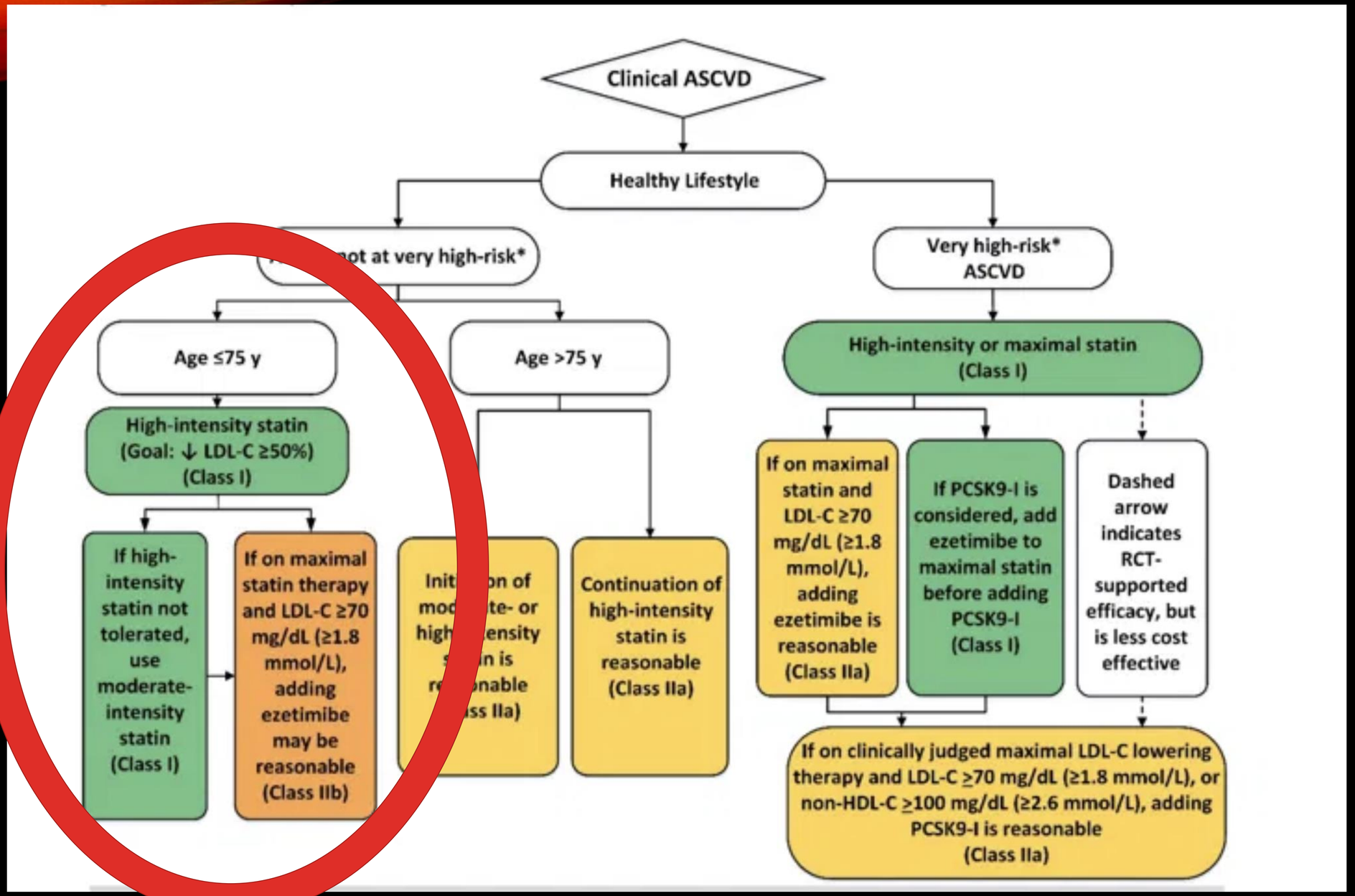
ESTIMATE OF CERTAINTY (PRECISION) OF TREATMENT EFFECT

	CLASS I *Benefit >>> Risk* Procedure/Treatment **SHOULD** be performed/ administered	CLASS IIa *Benefit >> Risk* *Additional studies with focused objectives needed* **IT IS REASONABLE** to perform procedure/administer treatment	CLASS IIb *Benefit ≥ Risk* *Additional studies with broad objectives needed; additional registry data would be helpful* Procedure/Treatment **MAY BE CONSIDERED**	CLASS III *No Benefit* or CLASS III *Harm* Procedure/Test / Treatment COR III: No benefit — Not Helpful / No Proven Benefit COR III: Harm — Excess Cost w/o Benefit or Harmful / Harmful to Patients
LEVEL A Multiple populations evaluated* Data derived from multiple randomized clinical trials or meta-analyses	■ Recommendation that procedure or treatment is useful/effective ■ Sufficient evidence from multiple randomized trials or meta-analyses	■ Recommendation in favor of treatment or procedure being useful/effective ■ Some conflicting evidence from multiple randomized trials or meta-analyses	■ Recommendation's usefulness/efficacy less well established ■ Greater conflicting evidence from multiple randomized trials or meta-analyses	■ Recommendation that procedure or treatment is not useful/effective and may be harmful ■ Sufficient evidence from multiple randomized trials or meta-analyses
LEVEL B Limited populations evaluated* Data derived from a single randomized trial or nonrandomized studies	■ Recommendation that procedure or treatment is useful/effective ■ Evidence from single randomized trial or nonrandomized studies	■ Recommendation in favor of treatment or procedure being useful/effective ■ Some conflicting evidence from single randomized trial or nonrandomized studies	■ Recommendation's usefulness/efficacy less well established ■ Greater conflicting evidence from single randomized trial or nonrandomized studies	■ Recommendation that procedure or treatment is not useful/effective and may be harmful ■ Evidence from single randomized trial or nonrandomized studies
LEVEL C Very limited populations evaluated* Only consensus opinion of experts, case studies, or standard of care	■ Recommendation that procedure or treatment is useful/effective ■ Only expert opinion, case studies, or standard of care	■ Recommendation in favor of treatment or procedure being useful/effective ■ Only diverging expert opinion, case studies, or standard of care	■ Recommendation's usefulness/efficacy less well established ■ Only diverging expert opinion, case studies, or standard of care	■ Recommendation that procedure or treatment is not useful/effective and may be harmful ■ Only expert opinion, case studies, or standard of care

66 yo male post stent to the RCA with an LDL of 64

- **a. No statin**
- **b. Low dose statin**
- **c. High dose statin**



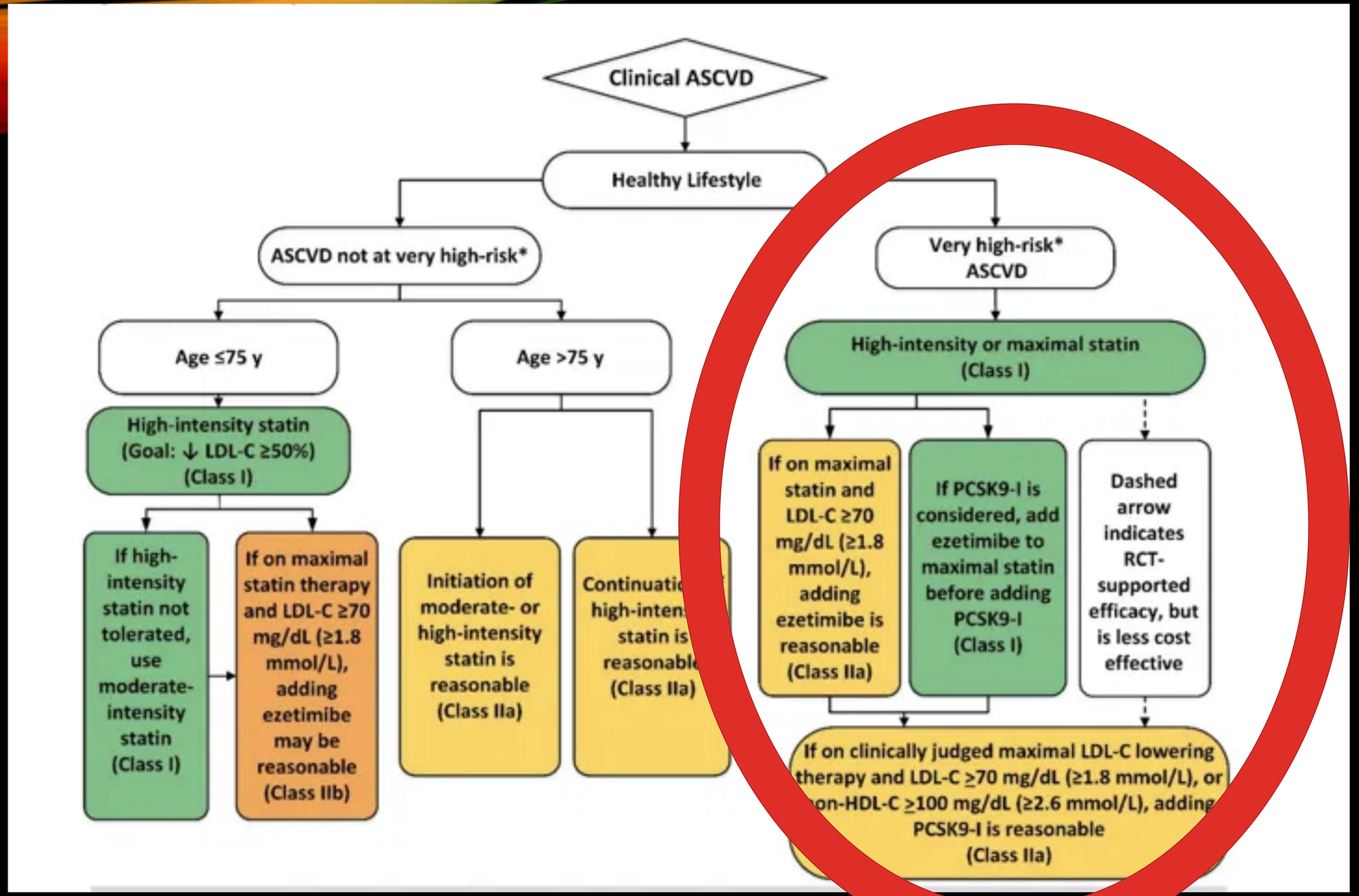

Clinical ASCVD
Healthy Lifestyle
ot at very high-risk*
Very high-risk* ASCVD
Age ≤75 y
Age >75 y
High-intensity or maximal statin (Class I)
High-intensity statin (Goal: ↓ LDL-C ≥50%) (Class I)
If high-intensity statin not tolerated, use moderate-intensity statin (Class I)
If on maximal statin therapy and LDL-C ≥70 mg/dL (≥1.8 mmol/L), adding ezetimibe may be reasonable (Class IIb)
Continuation of high-intensity statin is reasonable (Class IIa)
If on maximal statin and LDL-C ≥70 mg/dL (≥1.8 mmol/L), adding ezetimibe is reasonable (Class IIa)
If PCSK9-I is considered, add ezetimibe to maximal statin before adding PCSK9-I (Class I)
Dashed arrow indicates RCT-supported efficacy, but is less cost effective
If on clinically judged maximal LDL-C lowering therapy and LDL-C ≥70 mg/dL (≥1.8 mmol/L), or non-HDL-C ≥100 mg/dL (≥2.6 mmol/L), adding PCSK9-I is reasonable (Class IIa)

VERY HIGH RISK ASCVD

- *68 yo woman history of CABG in 1995. Has had multiple stents, diabetic, smokes, and LDL 104 despite 80 Lipitor*

Major ASCVD Events
Recent acute coronary syndrome (within the past 12 months)
History of myocardial infarction (other than recent acute coronary syndrome event listed above)
History of ischemic stroke
Symptomatic peripheral arterial disease (history of claudication with ankle brachial index <0.85, or previous revascularization or amputation)
High-Risk Conditions
Age ≥65 years
Heterozygous familial hypercholesterolemia
History of prior coronary artery bypass surgery or PCI outside of the major ASCVD event(s)
Diabetes Mellitus
Hypertension
Chronic kidney disease (eGFR 15-59 mL/min/1.73 m^2)
Current smoking
Persistently elevated LDL-C (LDL-C ≥100 mg/dL (≥2.6 mmol/L)) despite maximally tolerated statin therapy and ezetimibe
History of congestive heart failure

*Very High Risk includes a history of multiple major ASCVD events or one major ASCVD event and multiple high-risk conditions.


Clinical ASCVD
Healthy Lifestyle
ASCVD not at very high-risk*
Age ≤75 y
High-intensity statin (Goal: ↓ LDL-C ≥50%) (Class I)
If high-intensity statin not tolerated, use moderate-intensity statin (Class I)
If on maximal statin therapy and LDL-C ≥70 mg/dL (≥1.8 mmol/L), adding ezetimibe may be reasonable (Class IIb)
Age >75 y
Initiation of moderate- or high-intensity statin is reasonable (Class IIa)
Continuati high-inten statin is reasonable (Class IIa)
Very high-risk* ASCVD
High-intensity or maximal statin (Class I)
If on maximal statin and LDL-C ≥70 mg/dL (≥1.8 mmol/L), adding ezetimibe is reasonable (Class IIa)
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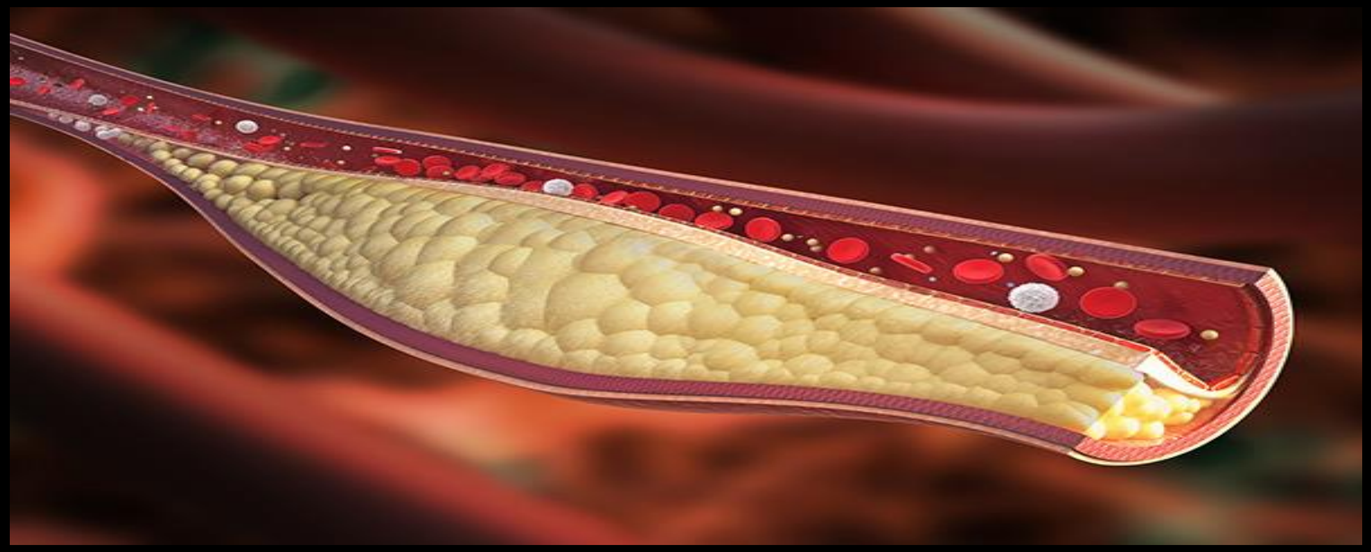
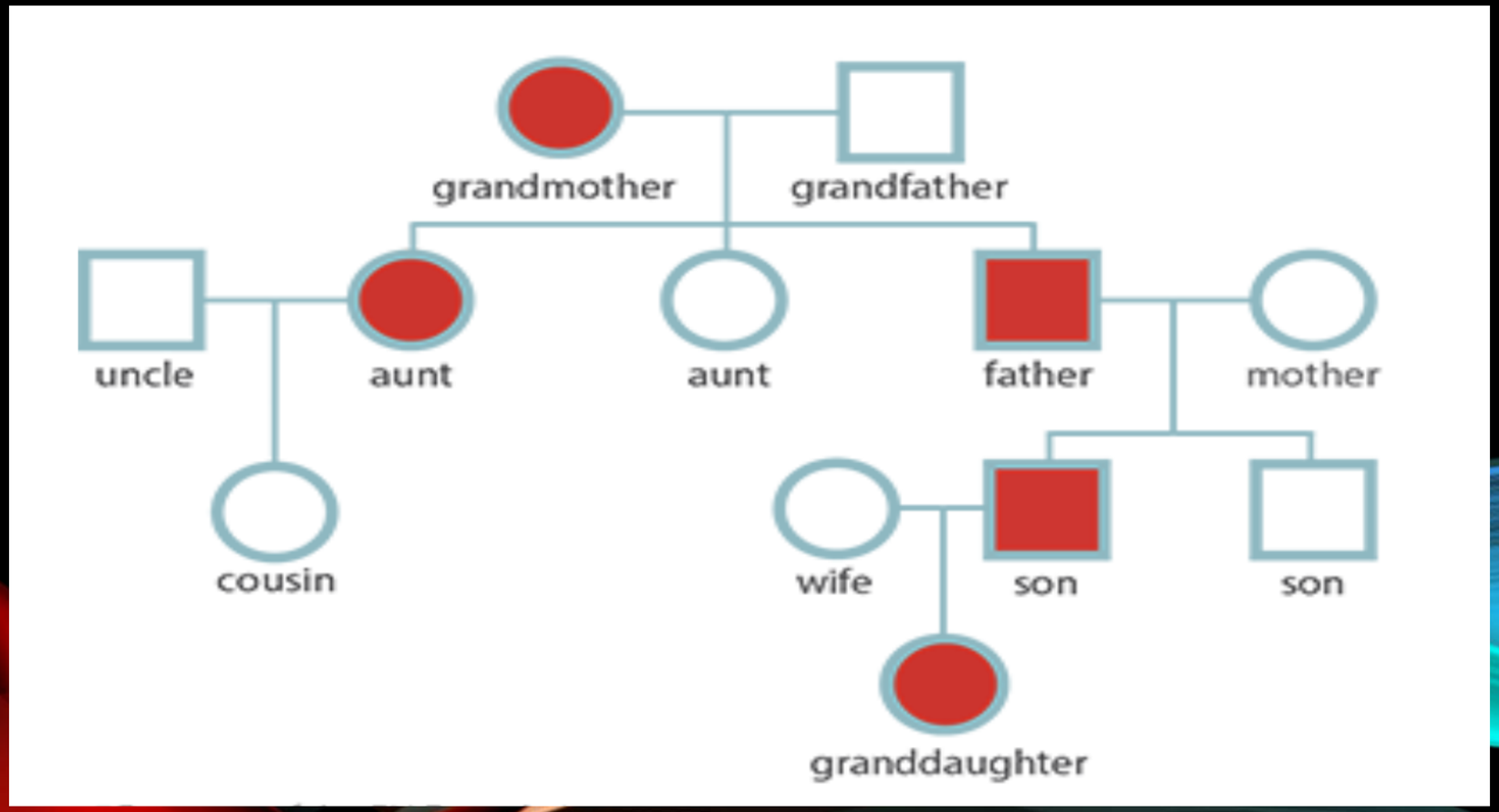
FAMILIAL HYPERLIPIDEMIA



45 yo male with multiple siblings with stents LDL 234

- Genetic disorder chromosome 19
- Unable to clear LDL
- Life expectancy reduced 15-30 years untreated and if homozygous form cardiac event in the 20*’s*



“

- If LDL not reduced by 50% or less than 100 add Zetia (IIa) If still not less than 100 add PSCK9 (IIb)
- Bile Acid Sequestrant (IIb) (Cholestyramine, Welchol)

”

Recommendations for Primary Severe Hypercholesterolemia (LDL-C ≥190 mg/dL [≥4.9 mmol/L])
Referenced studies that support recommendations are summarized in Online Data Supplements 9 and 10.

COR	LOE	Recommendations
I	B-R	1. In patients 20 to 75 years of age with an LDL-C level of 190 mg/dL (≥4.9 mmol/L) or higher, maximally tolerated statin therapy is recommended (S4.2-1–S4.2-7).
IIa	B-R	2. In patients 20 to 75 years of age with an LDL-C level of 190 mg/dL (≥4.9 mmol/L) or higher who achieve less than a 50% reduction in LDL-C while receiving maximally tolerated statin therapy and/or have an LDL-C level of 100 mg/dL (≥2.6 mmol/L) or higher, ezetimibe therapy is reasonable (S4.2-8–S4.2-10).
IIb	B-R	3. In patients 20 to 75 years of age with a baseline LDL-C level ≥190 mg/dL (≥4.9 mmol/L), who achieve less than a 50% reduction in LDL-C levels and have fasting triglycerides 0 mg/dL (≤3.4 mmol/L). while taking maximally tolerated statin and ezetimibe therapy, the addition of a bile acid sequestrant may be considered (S4.2-11, S4.2-12).
IIb	B-R	4. In patients 30 to 75 years of age with heterozygous FH and with an LDL-C level of 100 mg/dL (≥2.6 mmol/L) or higher while taking maximally tolerated statin and ezetimibe therapy, the addition of a PCSK9 inhibitor may be considered (S4.2-9, S4.2-13–S4.2-15).
IIb	C-LD	5. In patients 40 to 75 years of age with a baseline LDL-C level of 220 mg/dL (≥5.7 mmol/L) or higher and who achieve an on-treatment LDL-C level of 130 mg/dL (≥3.4 mmol/L) or higher while receiving maximally tolerated statin and ezetimibe therapy, the addition of a PCSK9 inhibitor may be considered (S4.2-13–S4.2-17).
Value Statement: Uncertain Value (B-NR)		6. Among patients with FH without evidence of clinical ASCVD taking maximally tolerated statin and ezetimibe therapy, PCSK9 inhibitors provide uncertain value at mid-2018 U.S. list prices.

DIABETICS

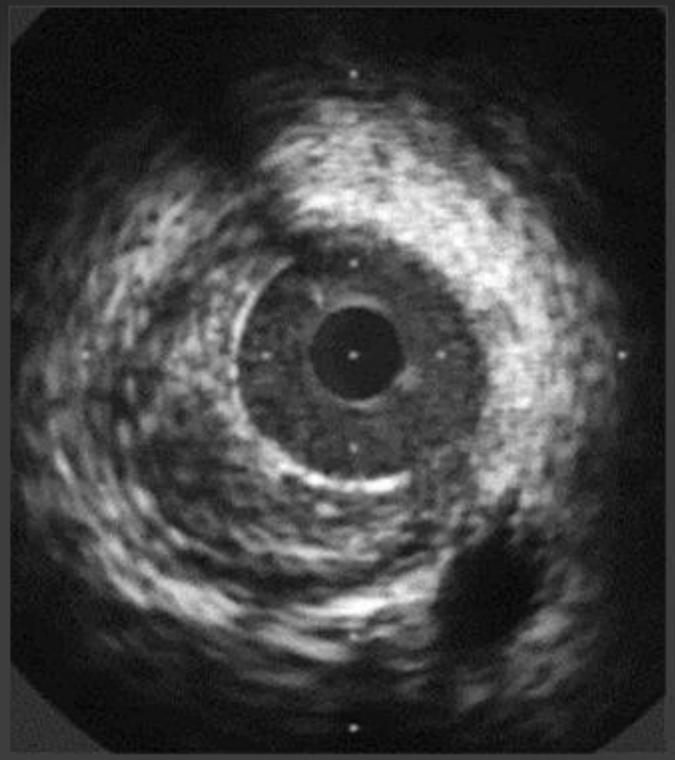
ALL DIABETICS MANDATE MODERATE DOSE STATINS

PRIMARY PREVENTION

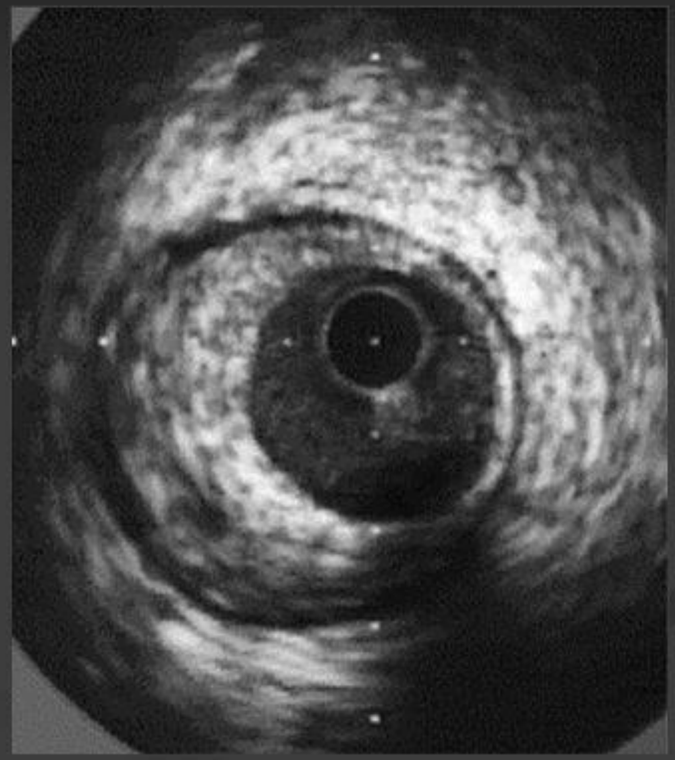
- https://www.youtube.com/watch?v=w8wXdtoW-HQ

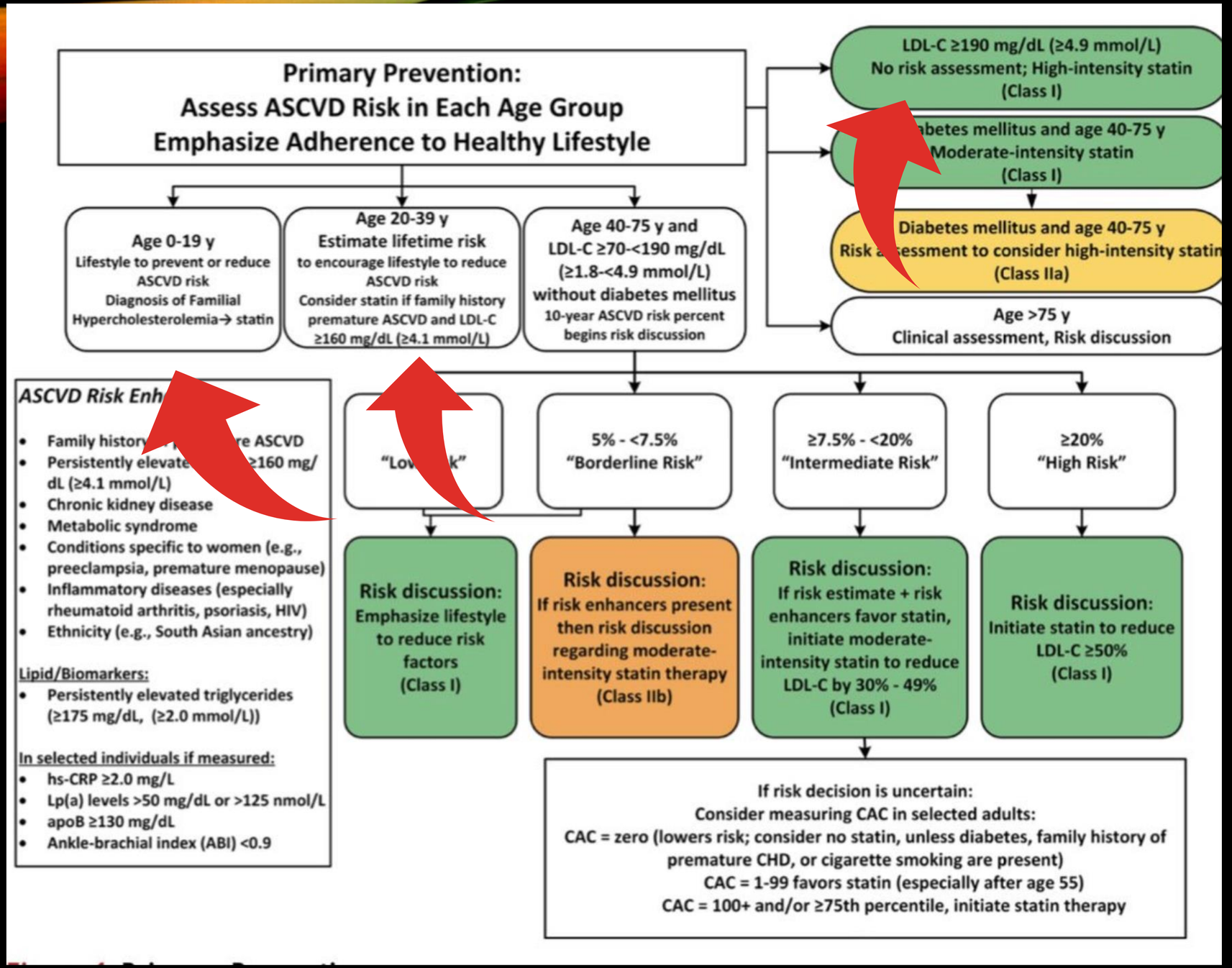
Same Lumen Size: Different Atheromas

Thin Cap With Lipid Core



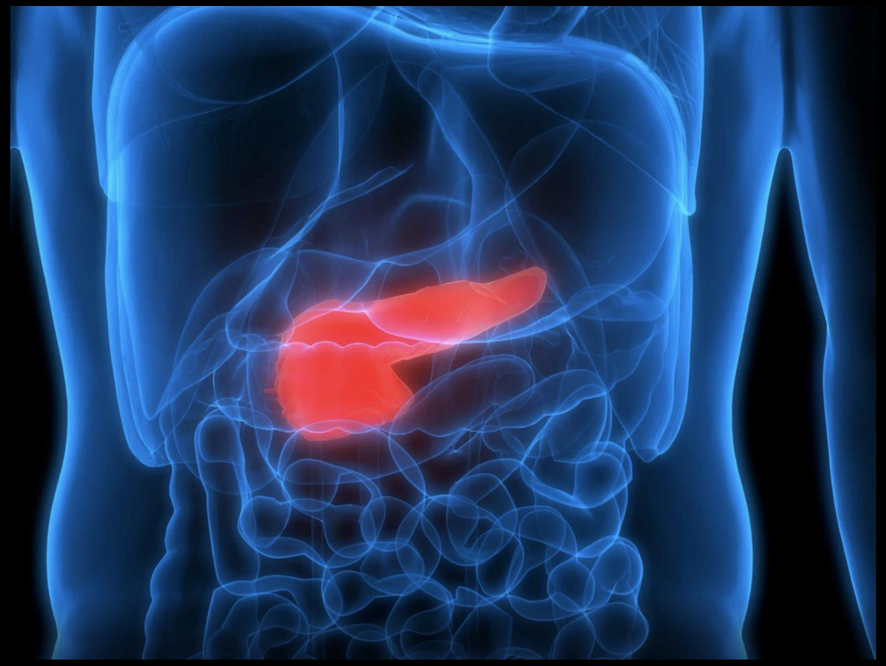
Thick Stable Fibrotic Cap

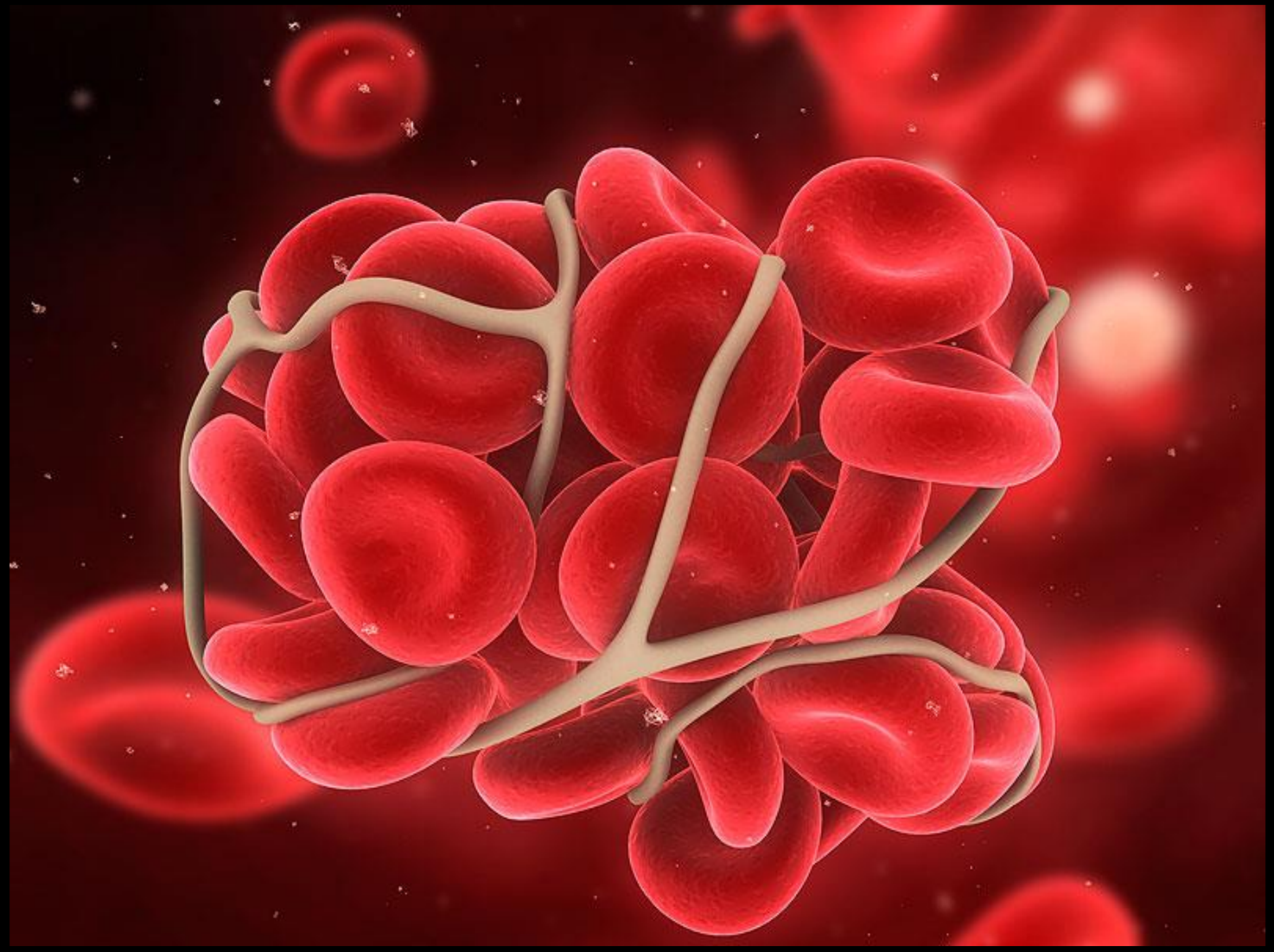



Primary Prevention:
Assess ASCVD Risk in Each Age Group
Emphasize Adherence to Healthy Lifestyle
Age 0-19 y
Lifestyle to prevent or reduce ASCVD risk
Diagnosis of Familial Hypercholesterolemia→ statin
Age 20-39 y
Estimate lifetime risk
to encourage lifestyle to reduce ASCVD risk
Consider statin if family history premature ASCVD and LDL-C ≥160 mg/dL (≥4.1 mmol/L)
Age 40-75 y and LDL-C ≥70-<190 mg/dL (≥1.8-<4.9 mmol/L) without diabetes mellitus
10-year ASCVD risk percent begins risk discussion
LDL-C ≥190 mg/dL (≥4.9 mmol/L)
No risk assessment; High-intensity statin
(Class I)
betes mellitus and age 40-75 y
Moderate-intensity statin
(Class I)
Diabetes mellitus and age 40-75 y
sessment to consider high-intensity statin
(Class IIa)
Age >75 y
Clinical assessment, Risk discussion
ASCVD Risk Enh
Family history re ASCVD
Persistently elevate ≥160 mg/dL (≥4.1 mmol/L)
Chronic kidney disease
Metabolic syndrome
Conditions specific to women (e.g., preeclampsia, premature menopause)
Inflammatory diseases (especially rheumatoid arthritis, psoriasis, HIV)
Ethnicity (e.g., South Asian ancestry)
Lipid/Biomarkers:
Persistently elevated triglycerides (≥175 mg/dL, (≥2.0 mmol/L))
In selected individuals if measured:
hs-CRP ≥2.0 mg/L
Lp(a) levels >50 mg/dL or >125 nmol/L
apoB ≥130 mg/dL
Ankle-brachial index (ABI) <0.9
"Low k"
5% - <7.5%
"Borderline Risk"
≥7.5% - <20%
"Intermediate Risk"
≥20%
"High Risk"
Risk discussion:
Emphasize lifestyle to reduce risk factors
(Class I)
Risk discussion:
If risk enhancers present then risk discussion regarding moderate-intensity statin therapy
(Class IIb)
Risk discussion:
If risk estimate + risk enhancers favor statin, initiate moderate-intensity statin to reduce LDL-C by 30% - 49%
(Class I)
Risk discussion:
Initiate statin to reduce LDL-C ≥50%
(Class I)
If risk decision is uncertain:
Consider measuring CAC in selected adults:
CAC = zero (lowers risk; consider no statin, unless diabetes, family history of premature CHD, or cigarette smoking are present)
CAC = 1-99 favors statin (especially after age 55)
CAC = 100+ and/or ≥75th percentile, initiate statin therapy

TRIGLYCERIDES

ONLY ROLE OF TRICOR AND GEMFIBROZIL

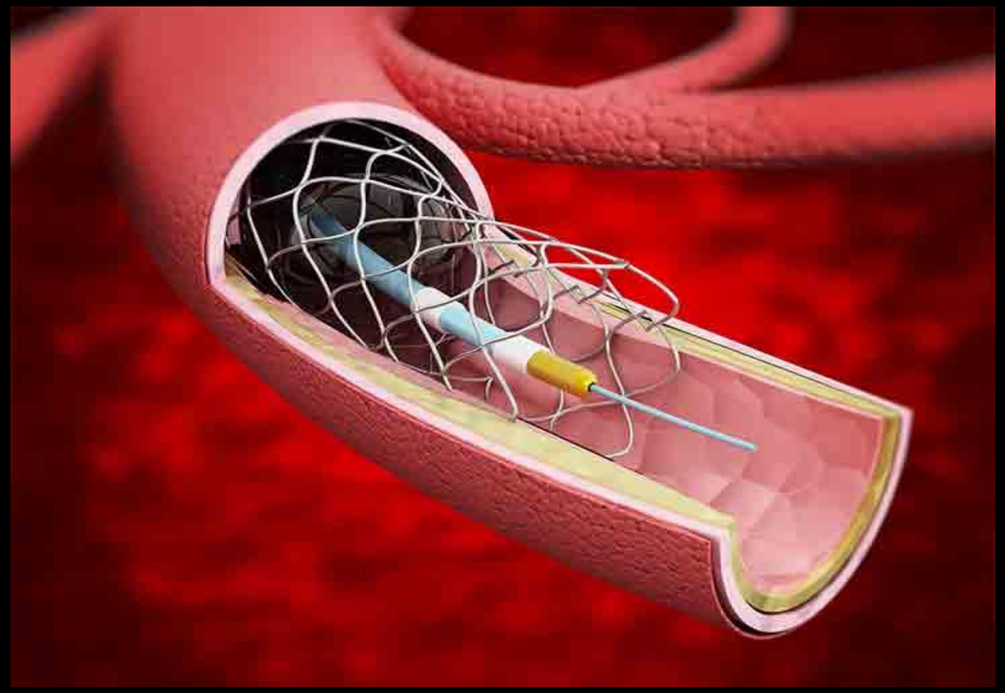




Aspirin should be used infrequently in the routine primary prevention of ASCVD because of lack of net benefit

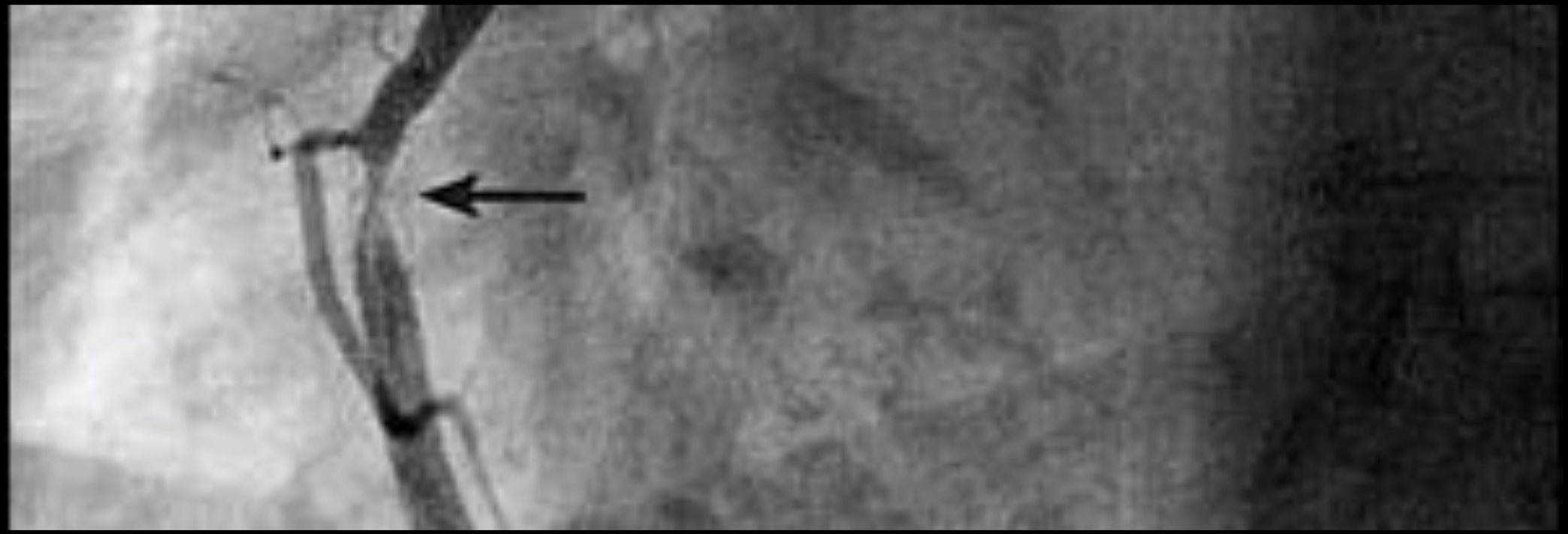
ALL MECHANICAL/TISSUE VALVES RECOMMENDED 81MG ASPIRIN

DAPT/POST STENT

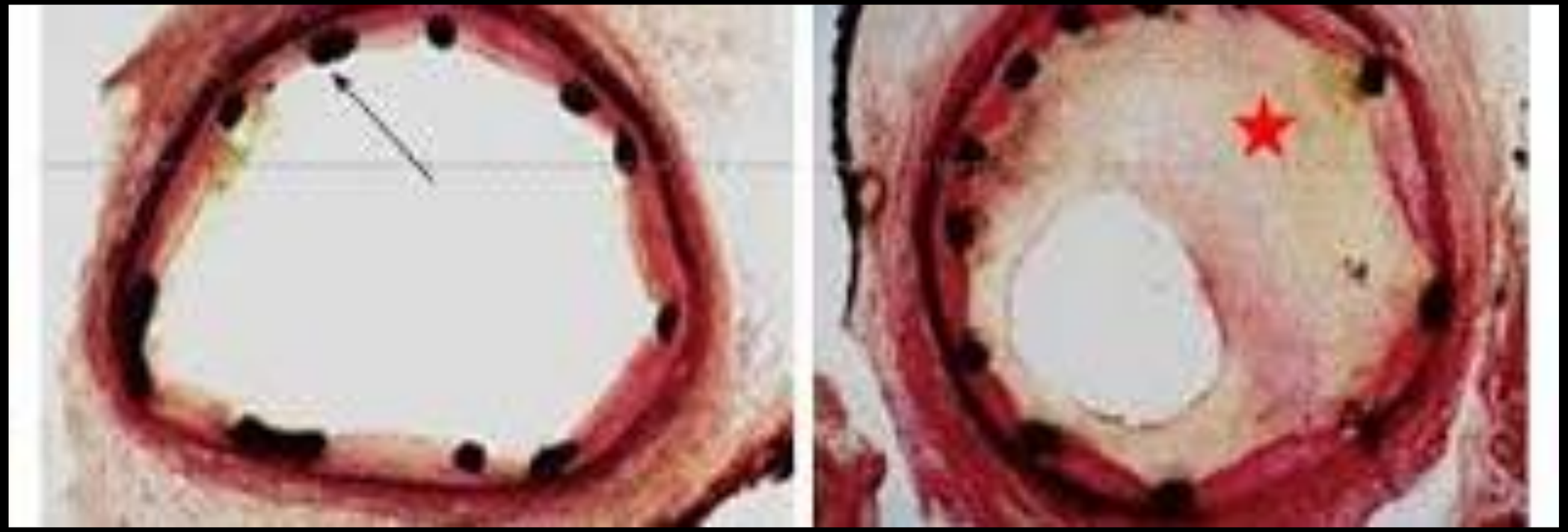


ACC/AHA GUIDELINE UPDATE DURATION OF DUAL ANTIPLATELET THERAPY

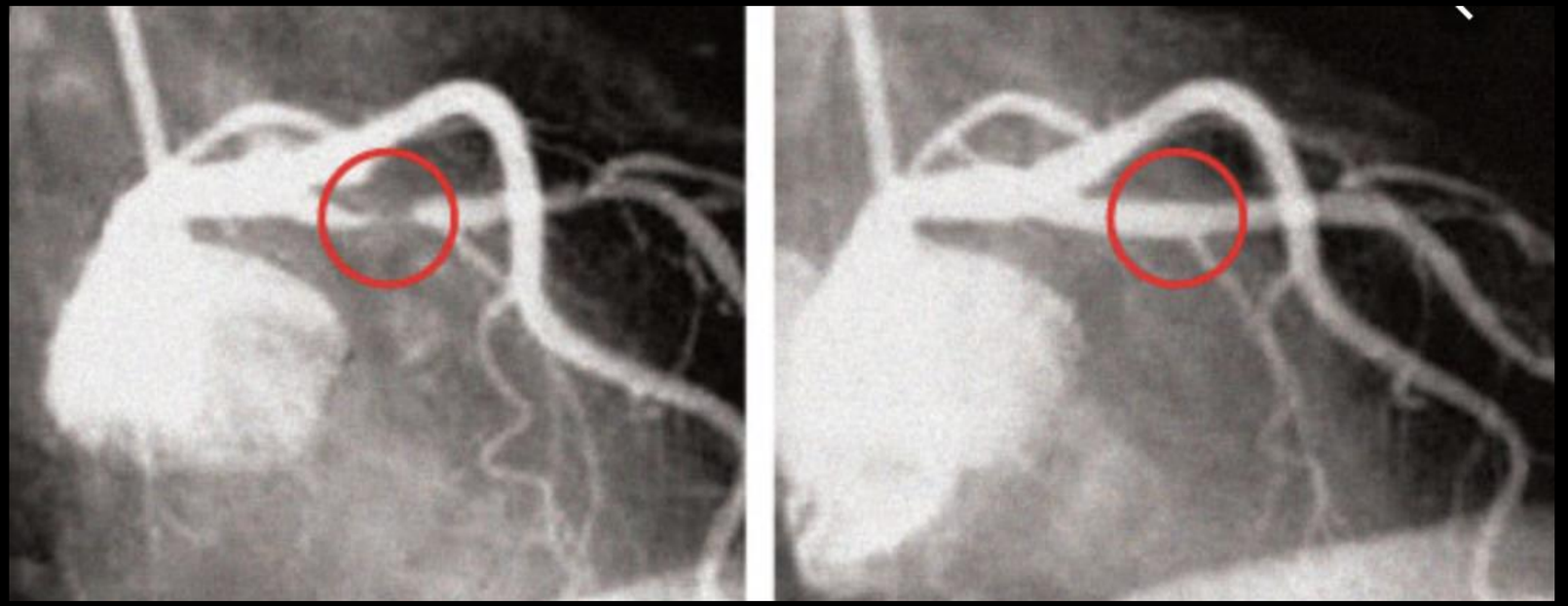
- The recommended daily dose of aspirin in patients treated with DAPT is 81 mg.
- The duration of DAPT is for at least 6 months.



INSTENT RESTENOSIS



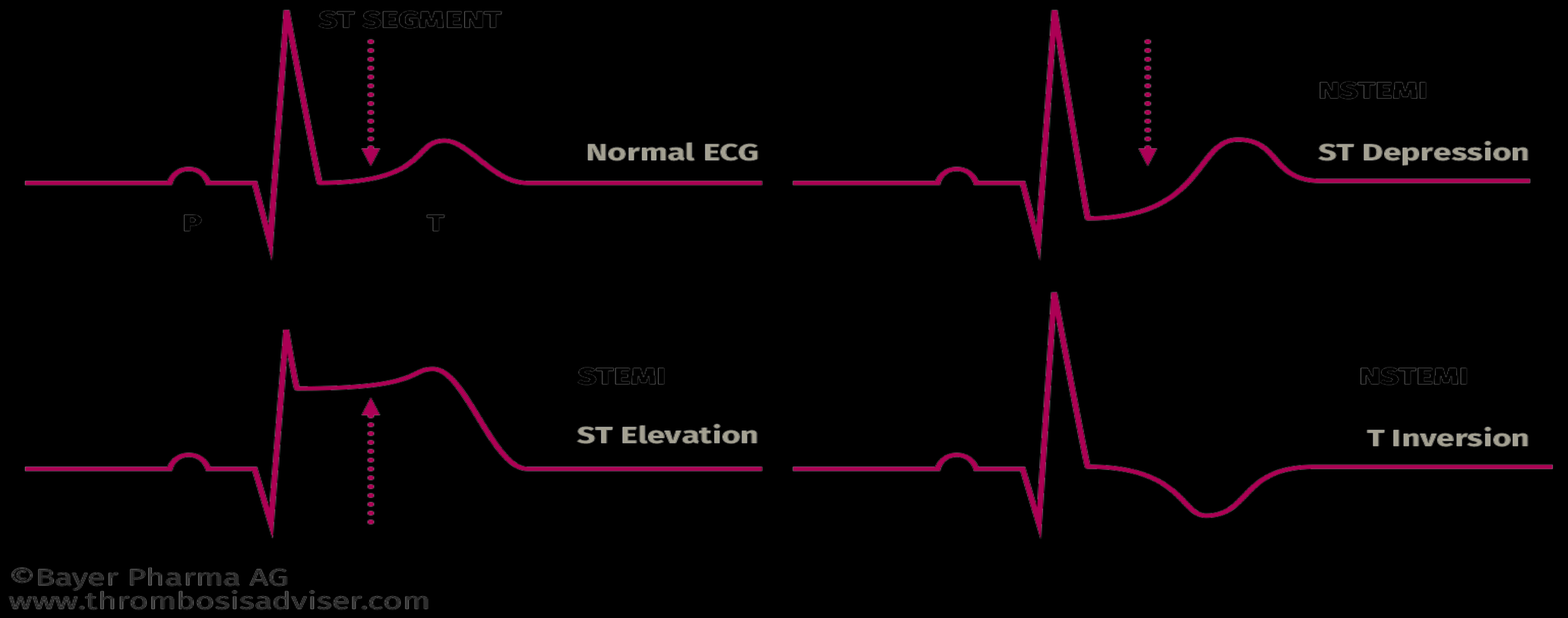
- 76 yo male DES to LAD12/25/2017
- Repeat Cath one year later 12/25/2018 no evidence of restenosis



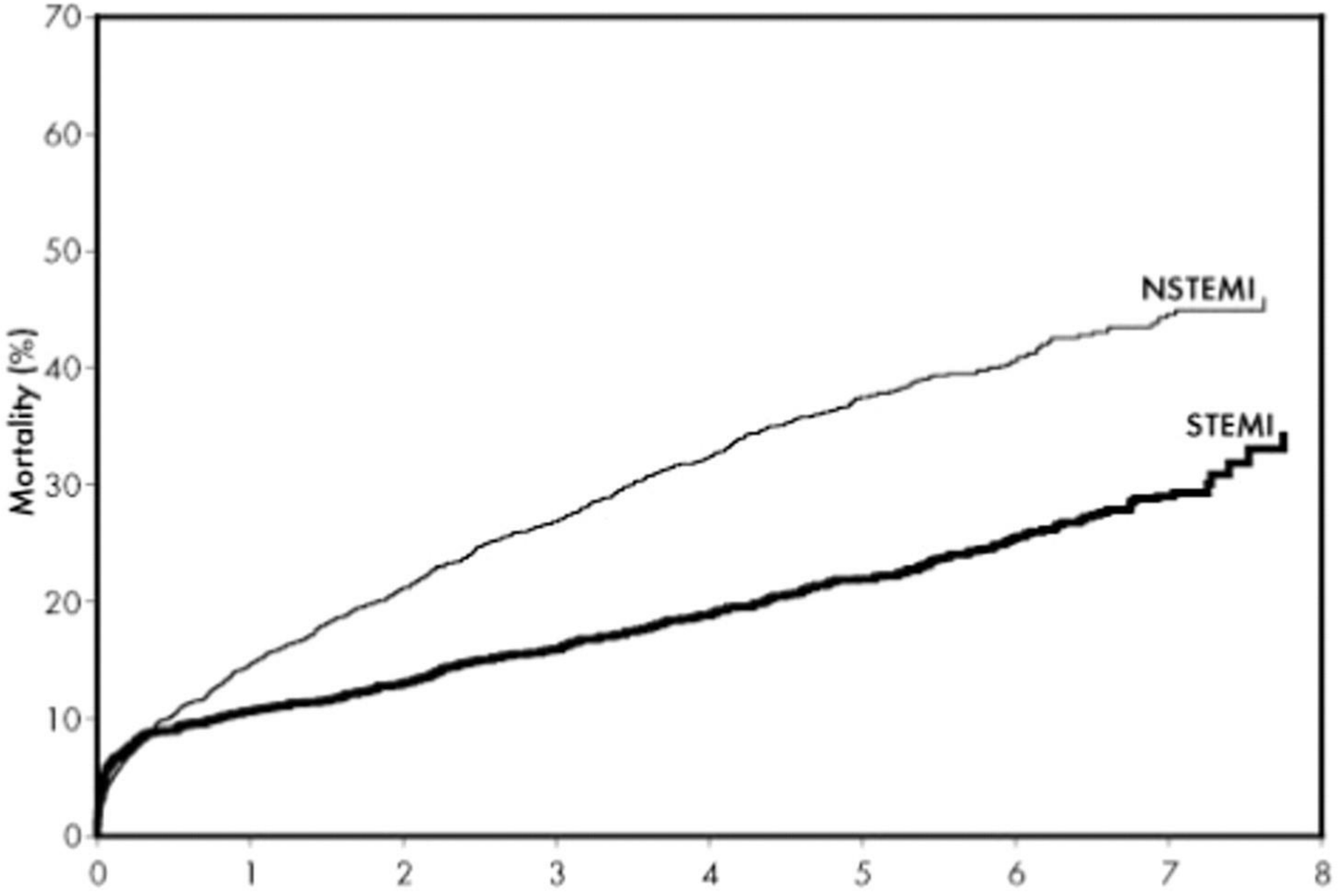
2017 2018

”DO I NEED STRESS TEST?”

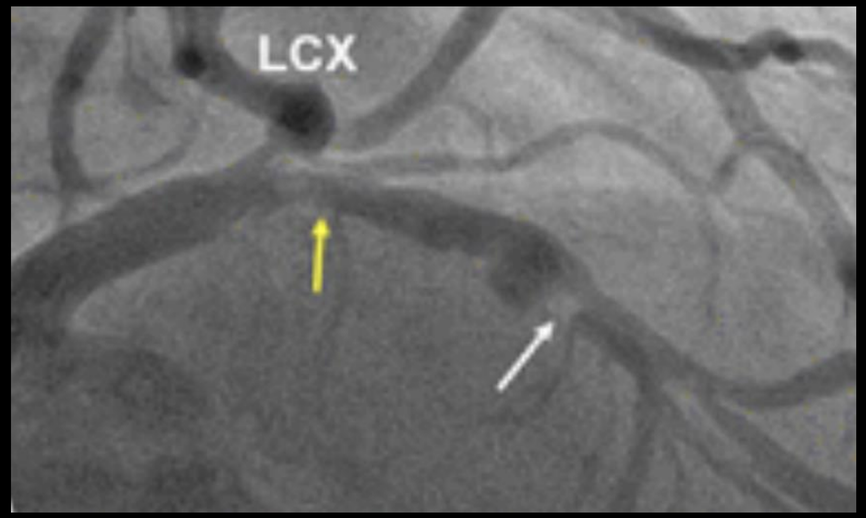
If no instent restenosis after one year…likelihood very low

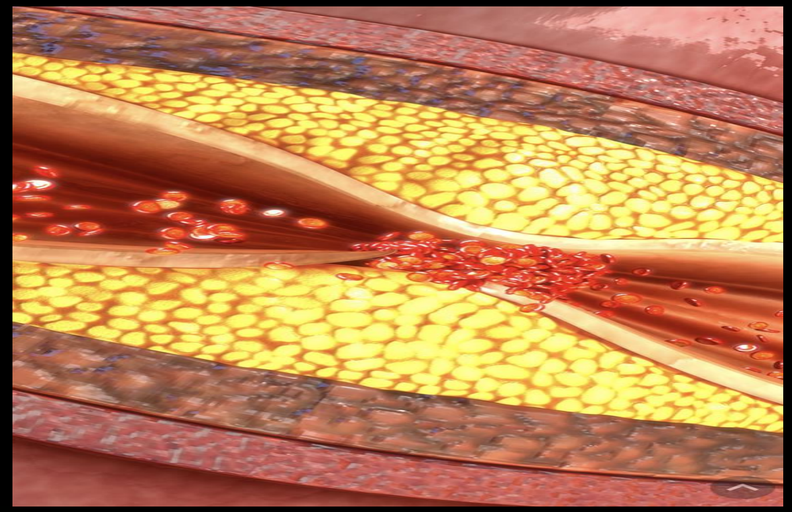


Acute Coronary Syndrome



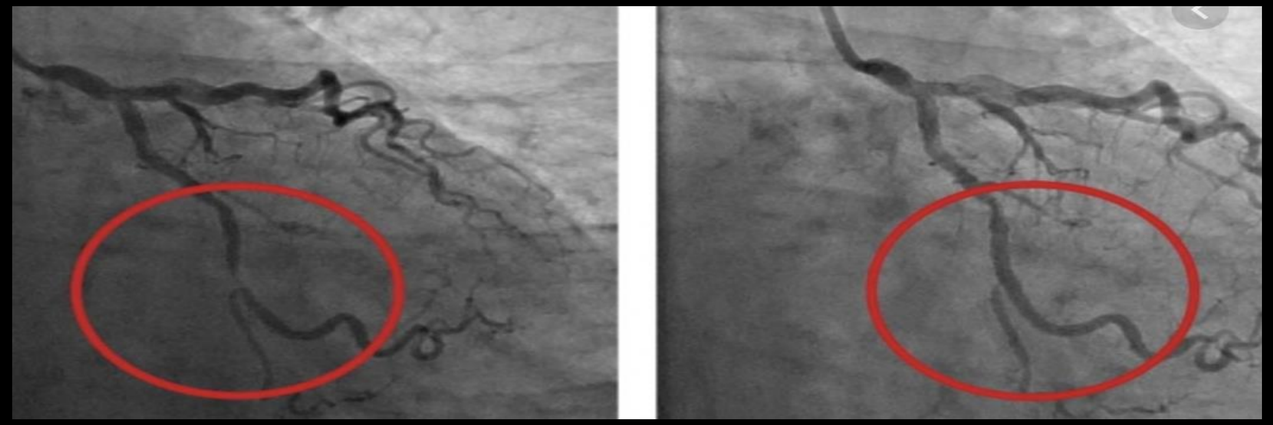
No. at risk									
STEMI	1951	1751	1628	1418	1143	878	576	289	35
NSTEMI	2399	2024	1771	1437	1093	769	451	208	32



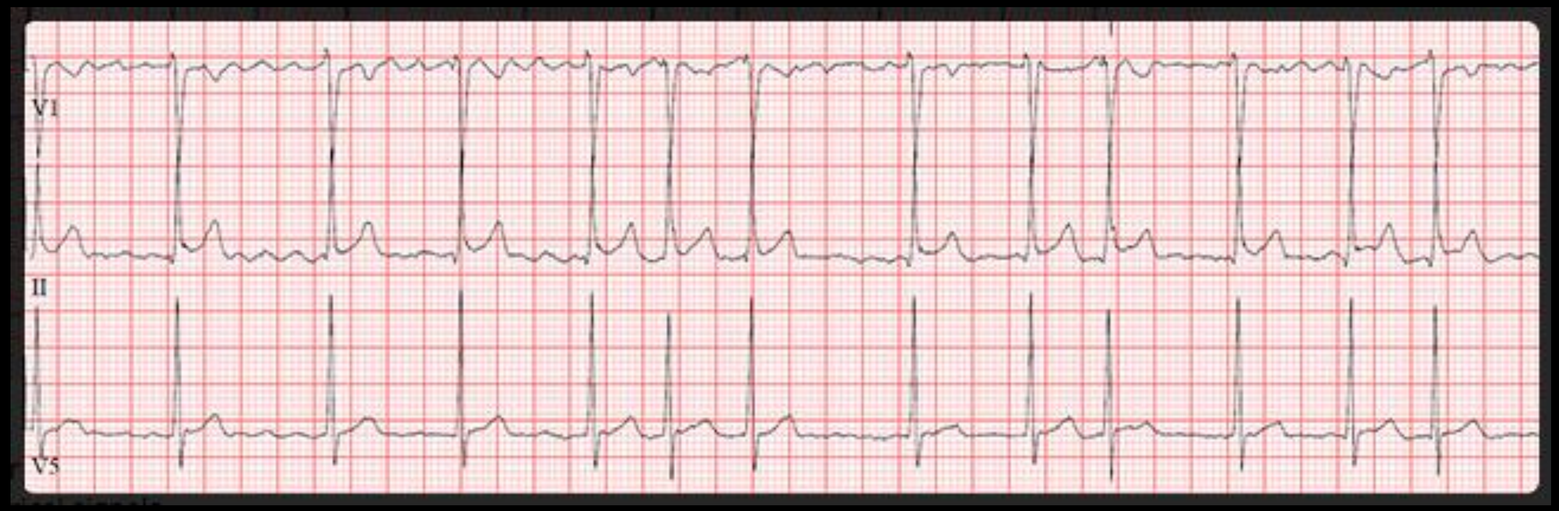


Acute MI or NSTEMI stents require DAPT for one year…**especially with Medical therapy**

Recommendations for Specific $P2Y_{12}$ Inhibitors		
COR	**LOE**	**Recommendations**
IIa	**B-R**	In patients with ACS (NSTE-ACS or STEMI) treated with DAPT after coronary stent implantation and in patients with NSTE-ACS treated with medical therapy alone (without revascularization), it is reasonable to use ticagrelor in preference to clopidogrel for maintenance $P2Y_{12}$ inhibitor therapy.[53,71,72]



TRIPLE THERAPY

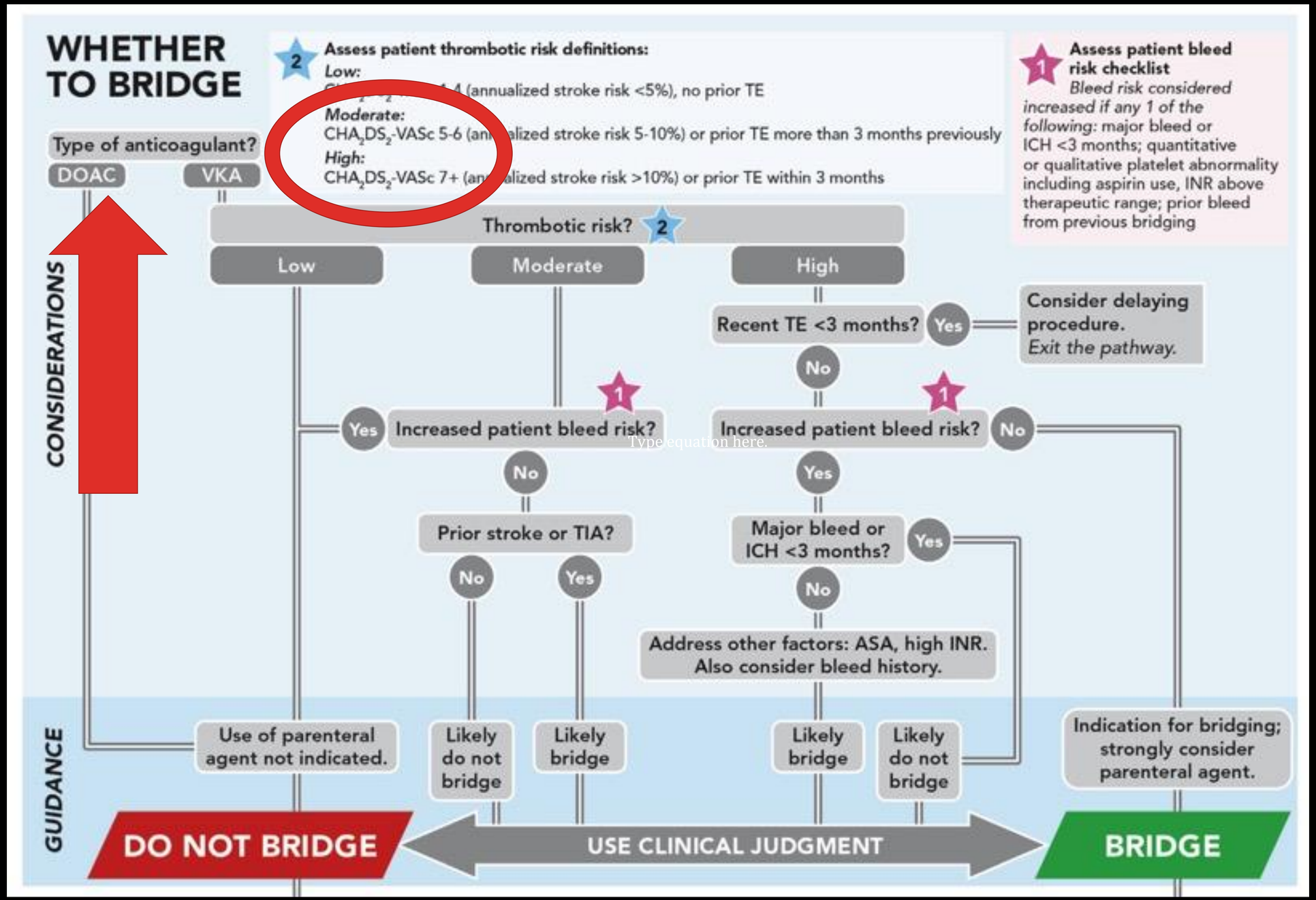


DOAC and Plavix 75 mg daily

…SAME PATIENT PRESENTS TO OFFICE ONE YEAR LATER

DOAC q… …avix

BRIDGING


WHETHER TO BRIDGE
2 Assess patient thrombotic risk definitions:
Low:
(annualized stroke risk <5%), no prior TE
Moderate:
CHA2DS2-VASc 5-6 (an alized stroke risk 5-10%) or prior TE more than 3 months previously
High:
CHA2DS2-VASc 7+ (an alized stroke risk >10%) or prior TE within 3 months
1 Assess patient bleed risk checklist
Bleed risk considered increased if any 1 of the following: major bleed or ICH <3 months; quantitative or qualitative platelet abnormality including aspirin use, INR above therapeutic range; prior bleed from previous bridging
Type of anticoagulant?
DOAC
VKA
Thrombotic risk? 2
Low
Moderate
High
Recent TE <3 months?
Yes
Consider delaying procedure.
Exit the pathway.
No
Increased patient bleed risk? 1
Yes
No
Type equation here.
Increased patient bleed risk? 1
No
Yes
Prior stroke or TIA?
No
Yes
Major bleed or ICH <3 months?
Yes
No
Address other factors: ASA, high INR. Also consider bleed history.
CONSIDERATIONS
GUIDANCE
Use of parenteral agent not indicated.
Likely do not bridge
Likely bridge
Likely bridge
Likely do not bridge
Indication for bridging; strongly consider parenteral agent.
DO NOT BRIDGE
USE CLINICAL JUDGMENT
BRIDGE

At a dose of 75 to 100 mg/day in addition to warfarin in all patients with mechanical valves (Class I recommendation; Level of evidence: A)

<u>Continuation</u> of VKA anticoagulation with a therapeutic INR is recommended in patients with mechanical heart valves undergoing minor procedures

How does one bridge with a DOAC like Xarelto???

1.Dental extractions
2.Cataract removal
3.EGD including mucosal biopsy
4.Colonoscopy including mucosa biopsy
5.ERCP including with biliary stent..where bleeding is easily controlled

<u>Bridging</u> anticoagulation for patients who are undergoing invasive or surgical procedures

1) **Mechanical AVR and any thromboembolic risk factor (TIA, atrial fibrillation, LV Dysfunction, hypercoaguable state)**

2) **Older-generation mechanical AVR**

3) **Mechanical MVR**

PREDICTIONS FOR 2020

- Reduction in the duration of dual antiplatelet therapy (DAPT) after percutaneous coronary intervention (PCI). These three seminal trials: TWILIGHT, SMART-CHOICE, and STOPDAPT-2.
- Colchicine post Myocardial infarction
- Triglyceride drugs for cardiovascular disease


Happy Holidays
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