

BVS and DAPT Duration

The Longer the Better?

David J. Cohen, M.D., M.Sc.

Director, Cardiovascular Research
Saint-Luke's Mid America Heart Institute

Professor of Medicine
University of Missouri-Kansas City

Disclosures

Grant Support/Drugs

- Daiichi-Sankyo
- Astra-Zeneca
- Eli Lilly
- Merck

Grant Support/Devices

- Edwards Lifesciences
- Medtronic
- Biomet
- Abbott Vascular
- Boston Scientific
- Covidien

Consulting/Advisory Boards

- Medtronic
- Eli Lilly
- Astra-Zeneca

Bioresorbable Vascular Scaffolds (BRS)

Igaki-Tamai



PLLA

Abbott Absorb



PLLA
(eluting everolimus)

Elixir DESolve



PLLA
(eluting novolimus)

Reva Fantom



Iodinated tyrosine-
derivative
(eluting sirolimus)

Biotronik Dreams



Magnesium
(eluting sirolimus)

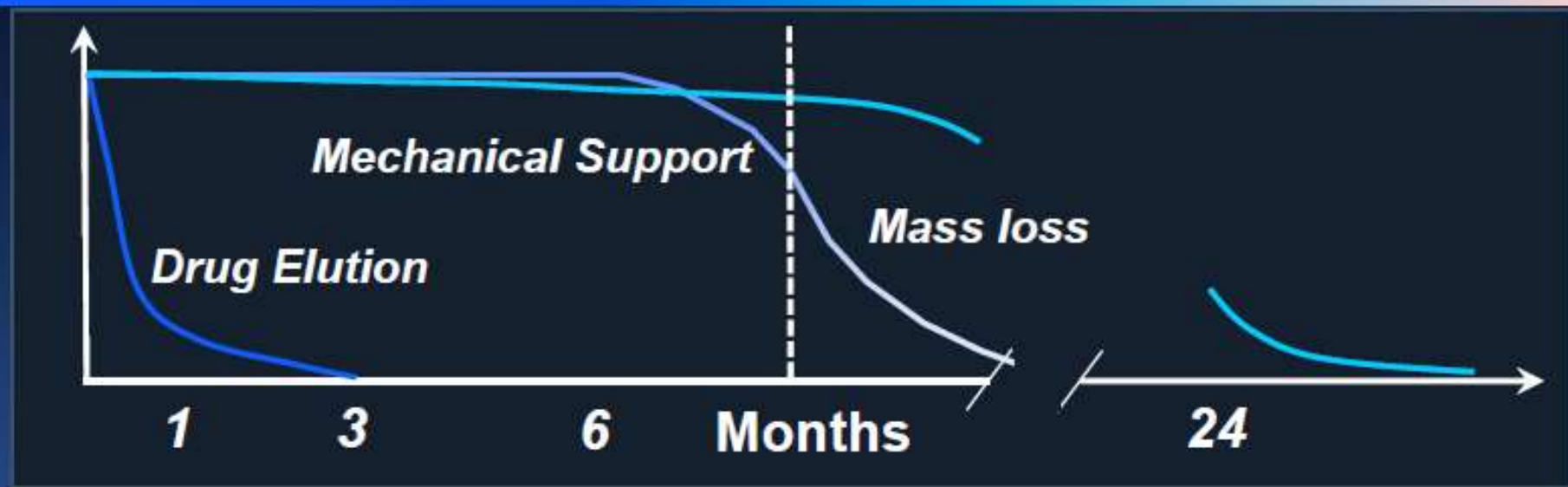


Phases of Absorb BVS Functionality

Revascularization

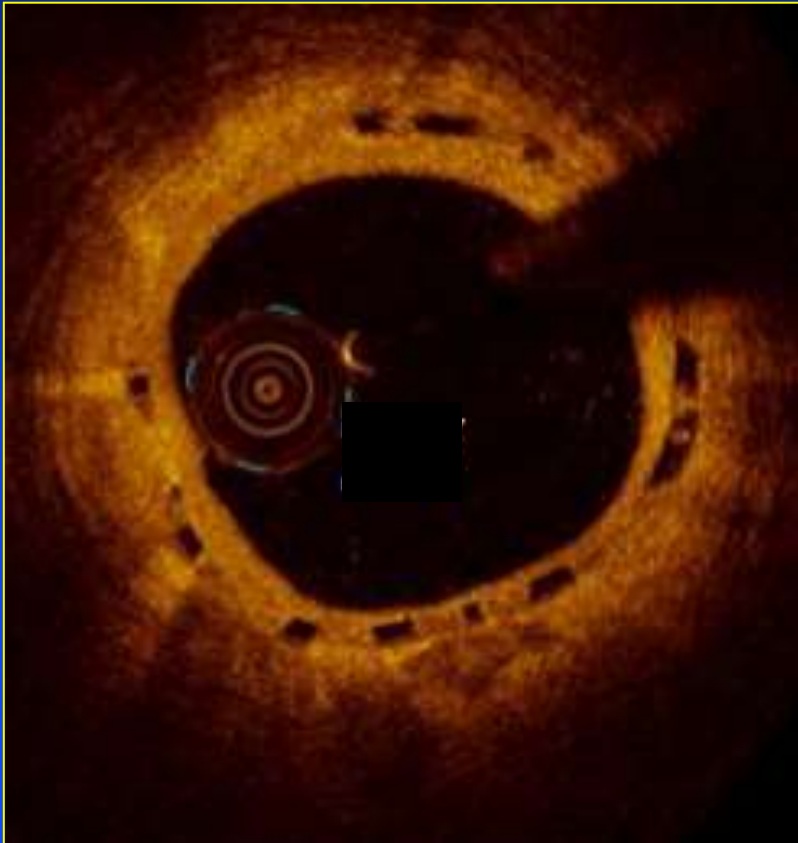
Restoration

Resorption



BVS: Serial OCT Imaging

2 Year F/U



5 Year F/U



DAPT Duration after BVS

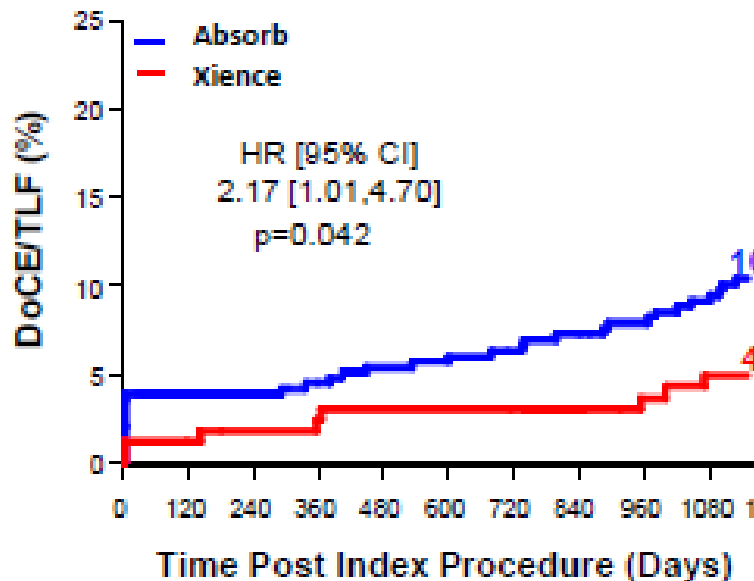
- Why are there concerns?
- Mechanisms of stent thrombosis after BVS
- What are the data so far?

DAPT Duration after BVS

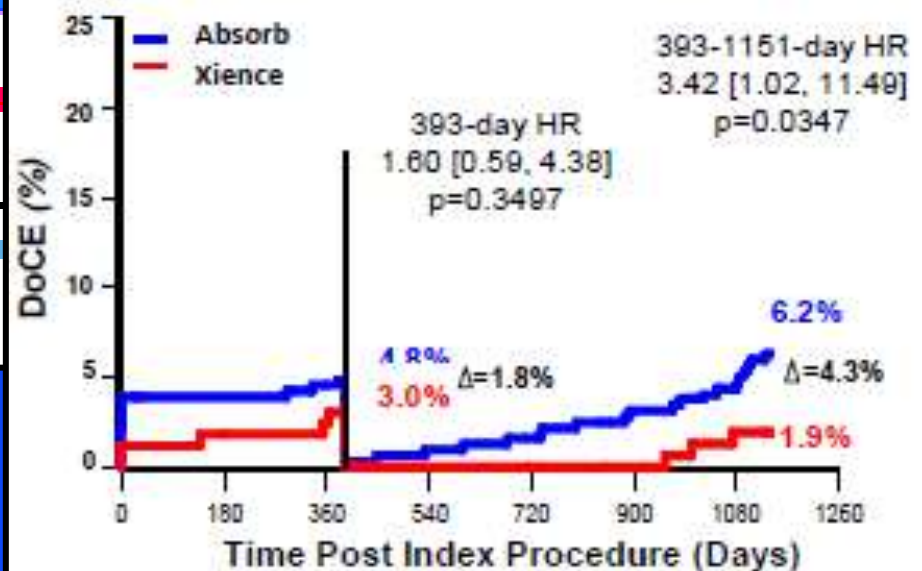
- Why are there concerns?
- Mechanisms of stent thrombosis after BVS
- What are the data so far?

ABSORB II: 3 Year Outcomes

DoCE



1-year landmark analysis

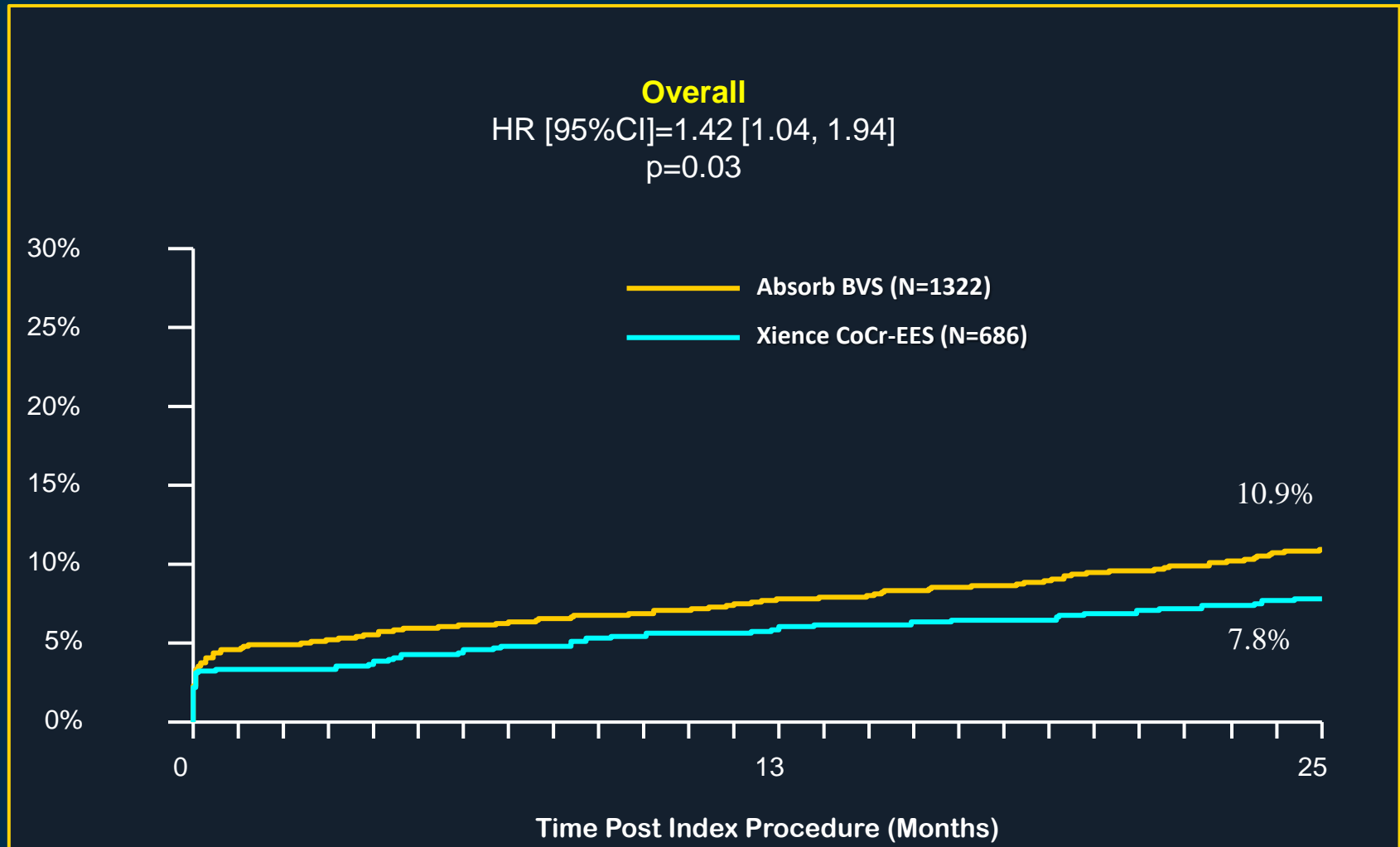


ABSORB II: Stent or Scaffold Thrombosis

	Absorb 335 patients	Xience 166 patients	p value
Definite	2·5% (8)	0·0% (0)	0·06
Acute (0–1 day)	0·3% (1)	0·0% (0)	1·0
Sub-acute (2–30 days)	0·3% (1)	0·0% (0)	1·0
Late (31–365 days)	0·0% (0)	0·0% (0)	1·0
Very late (>365 days)	1·8% (6)	0·0% (0)	0·19
Definite or probable	2·8%(9)	0·0% (0)	0·03
Acute (0–1 day)	0·3% (1)	0·0% (0)	1·0
Sub-acute (2–30 days)	0·3% (1)	0·0% (0)	1·0
Late (31–365 days)	0·3% (1)	0·0% (0)	1·0
Very late (>365 days)	1·8% (6)	0·0% (0)	0·19



ABSORB III: TLF by 2 Years

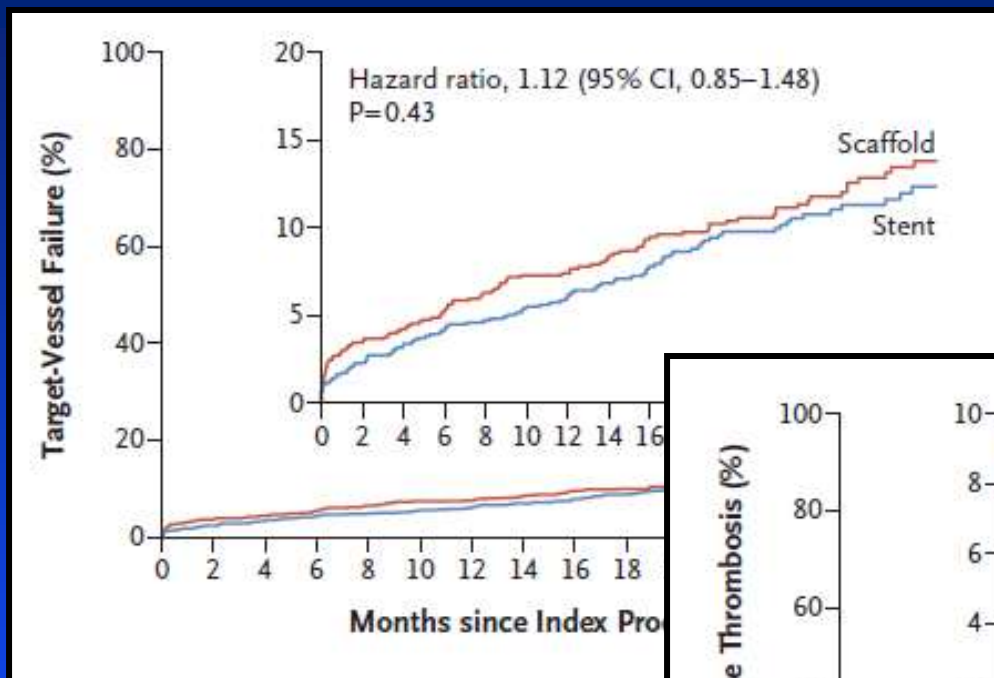




Clinical Endpoints by 2 Years

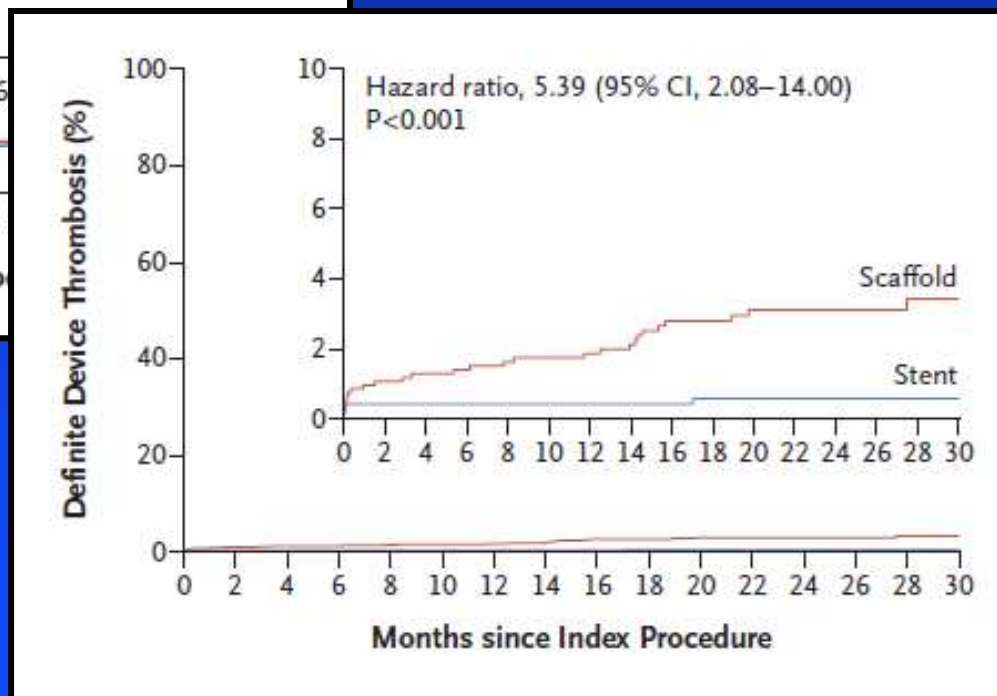
	Absorb (N=1322)	XIENCE (N=686)	P-Value
TLF	11.0%	7.9%	0.03
Cardiac Death	1.1%	0.6%	NS
TV-MI	7.3%	4.9%	0.04
ID-TLR	5.3%	4.3%	NS
ST (Def/Prob)	1.9%	0.8%	NS

AIDA Trial: 30 Month Outcomes



Device Thrombosis at 2 yrs

- BVS 3.1%
- Xience 0.6%



DAPT Duration after BVS

- Why are there concerns?
- Mechanisms of stent thrombosis after BVS
- What are the data so far?

Mechanisms of ST with BVS

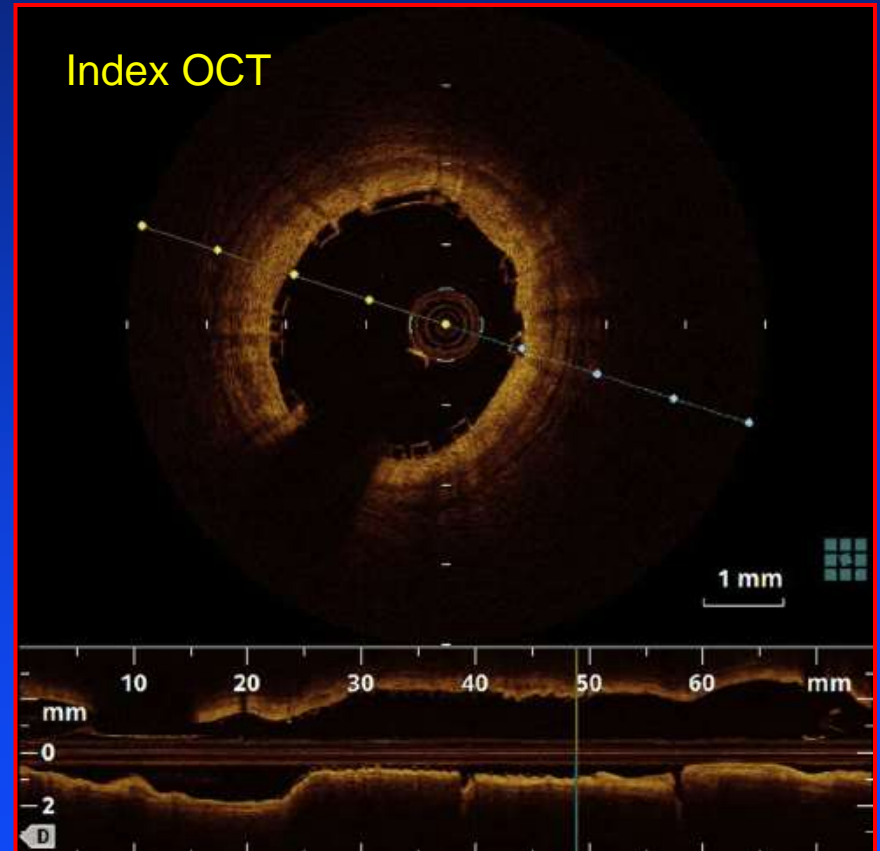
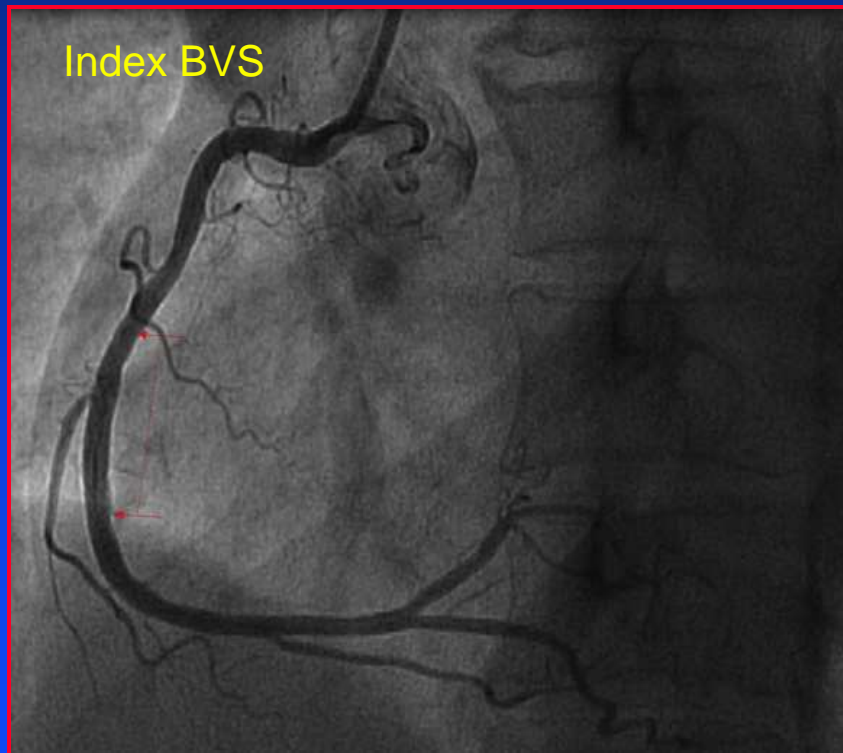
Subacute Thrombosis (0-30 days)

- Thick strut → flow disturbance (exacerbated with treatment of small vessels), platelet activation
- Acute malapposition due to insufficient post-dilation

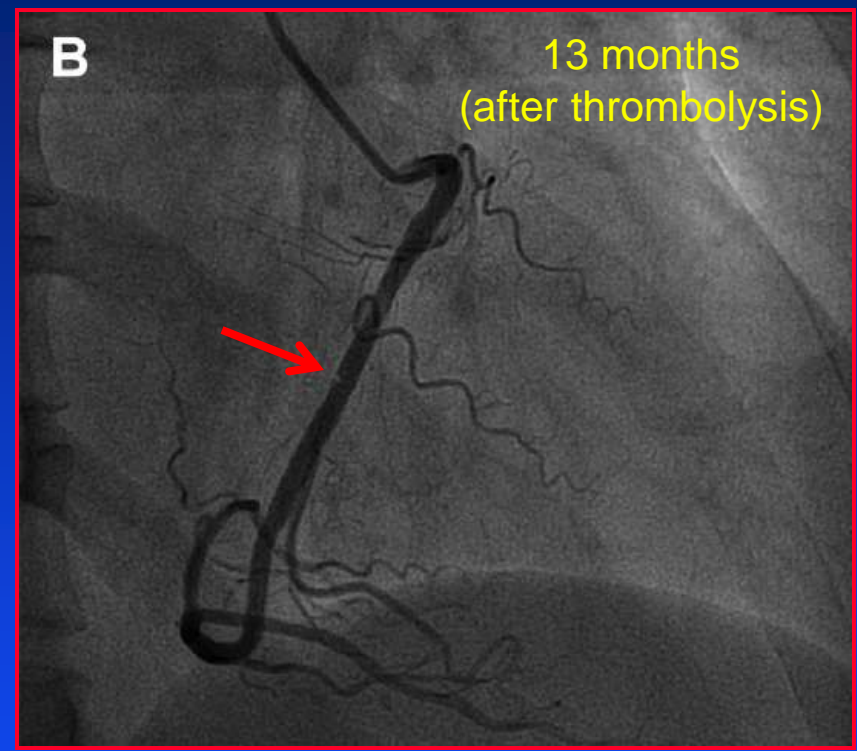
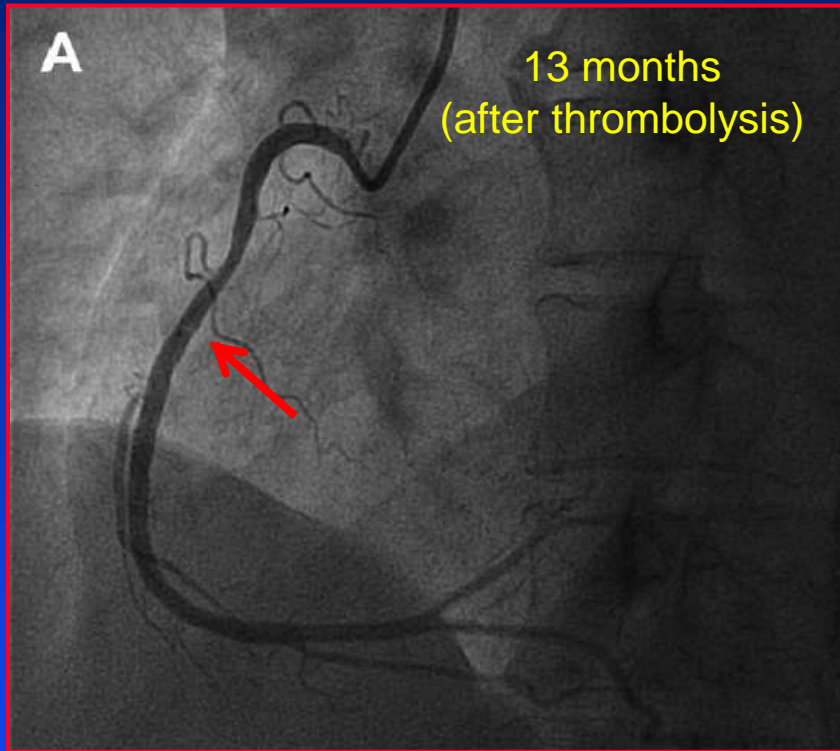
Very Late Thrombosis (>1 year)

- Incomplete scaffold resorption
- Intraluminal scaffold dismantling

Intraluminal Scaffold Dismantling

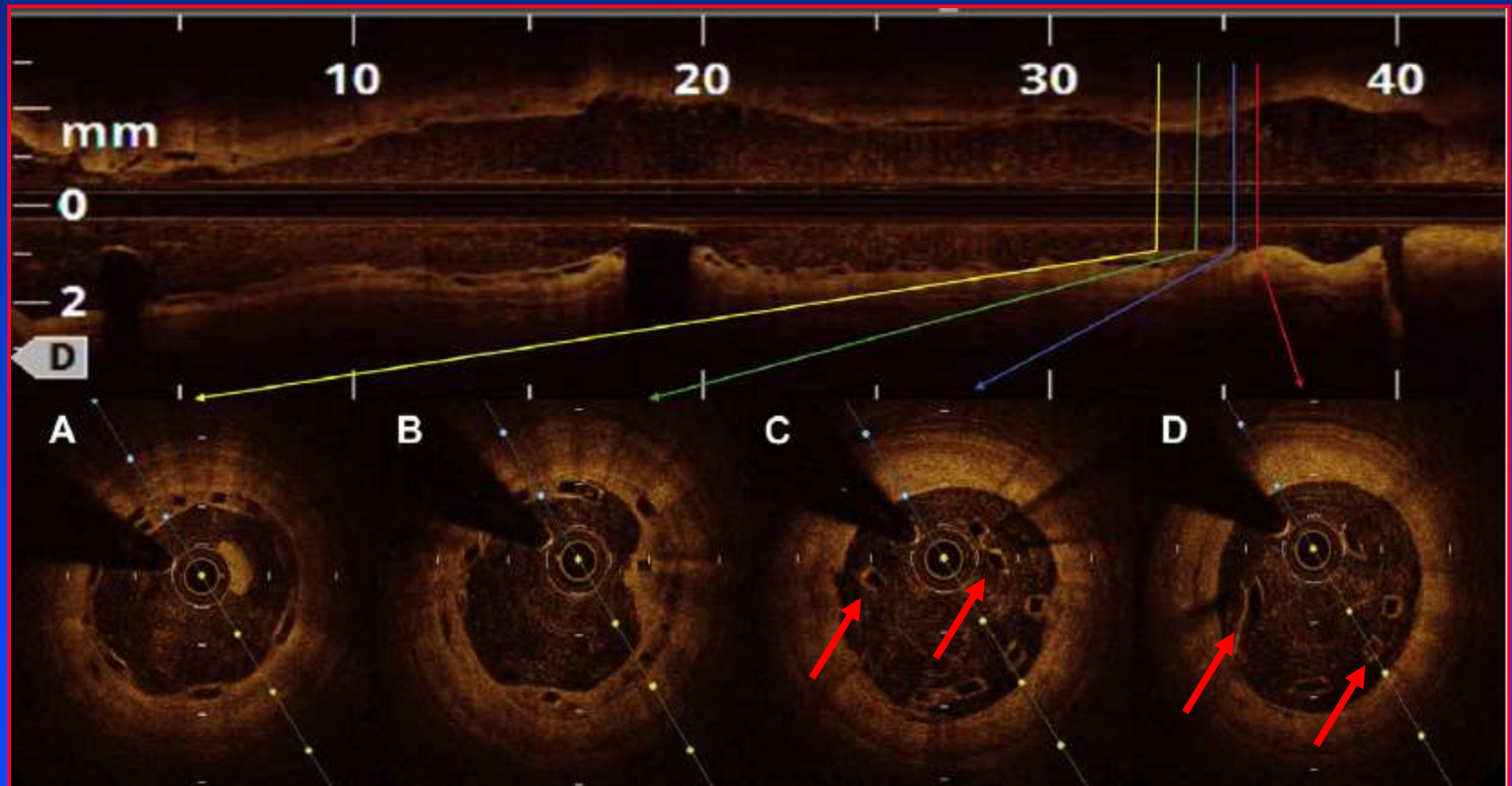


13 Months after BVS: IMI



Patient presented 13 months after initial PCI (off DAPT x 1 month) with inferior STEMI → treated with thrombolysis

Follow-up OCT: Intravascular Dismantling



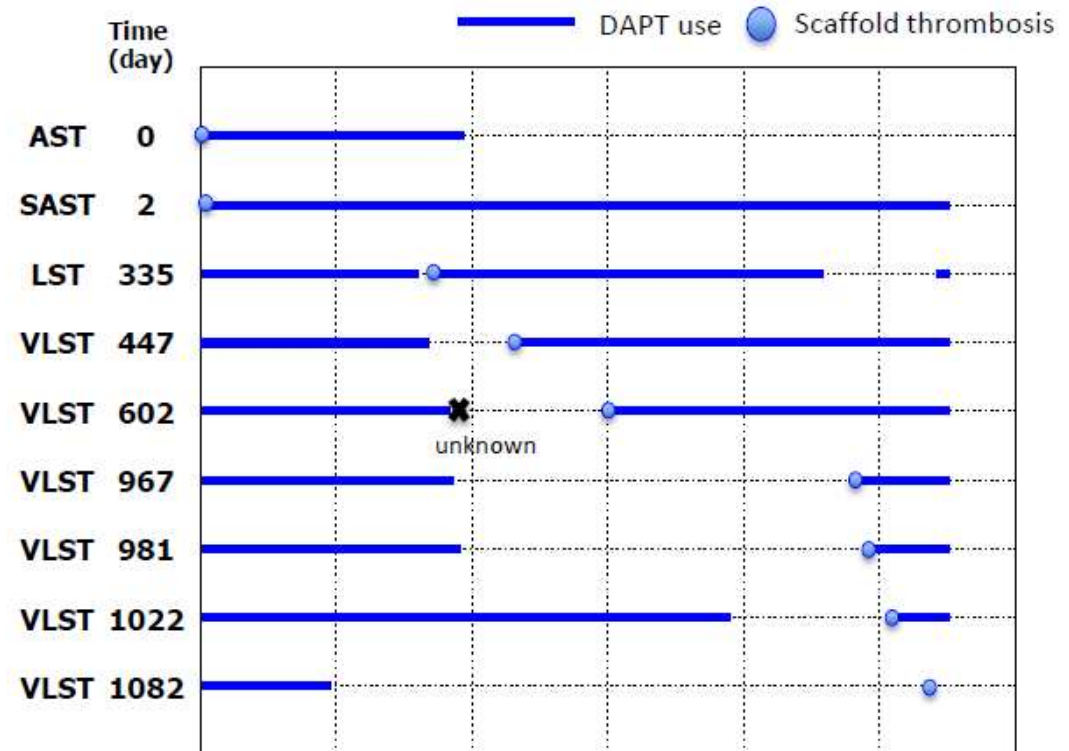
DAPT Duration after BVS

- Why are there concerns?
- Mechanisms of stent thrombosis after BVS
- What are the data so far?

ABSORB II: DAPT Use at the Time of VLST

Absorb	no VLST	VLST
DAPT 3y without interruption	63	0
DAPT with interruption	266	6

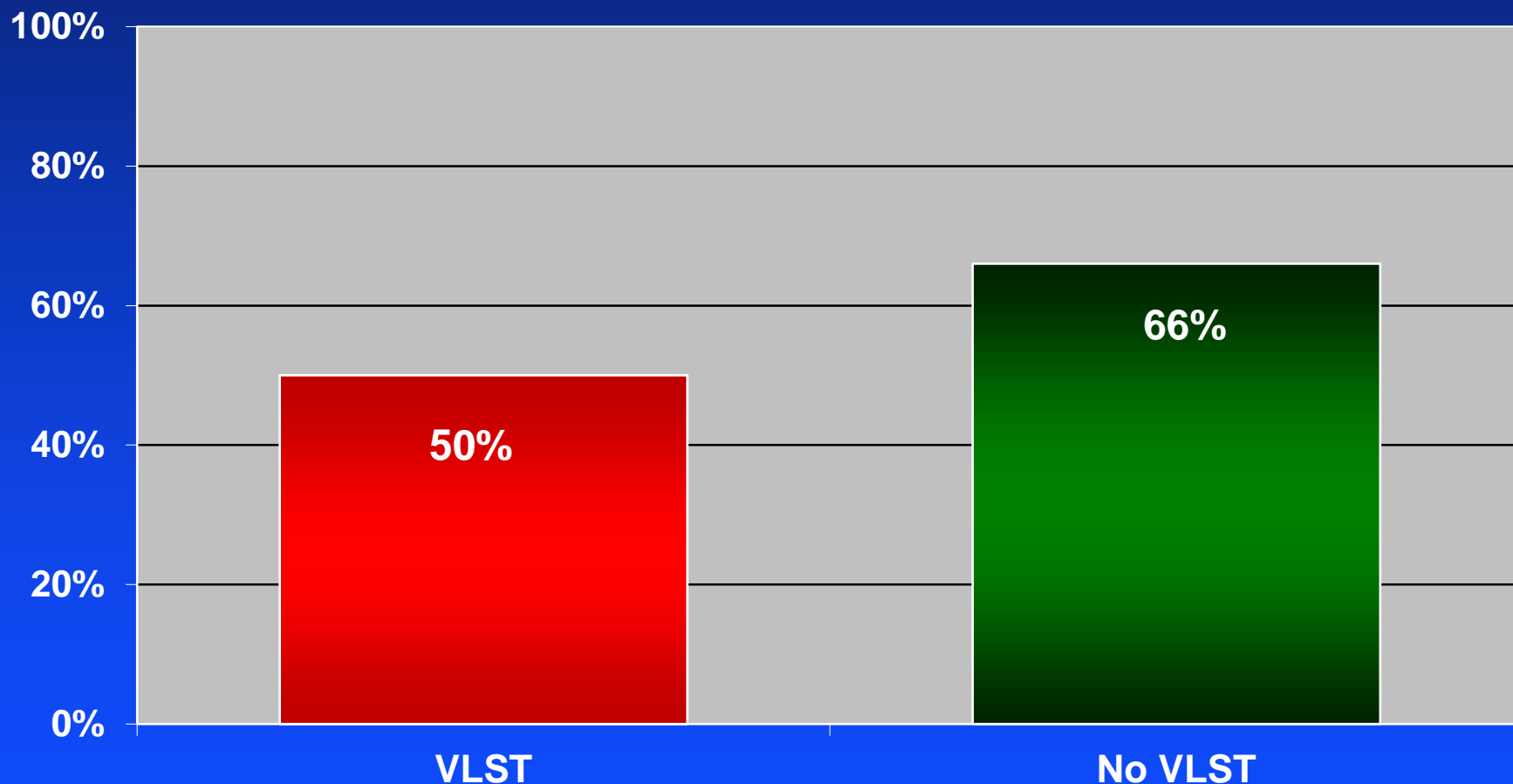
DAPT use in scaffold thrombosis cases



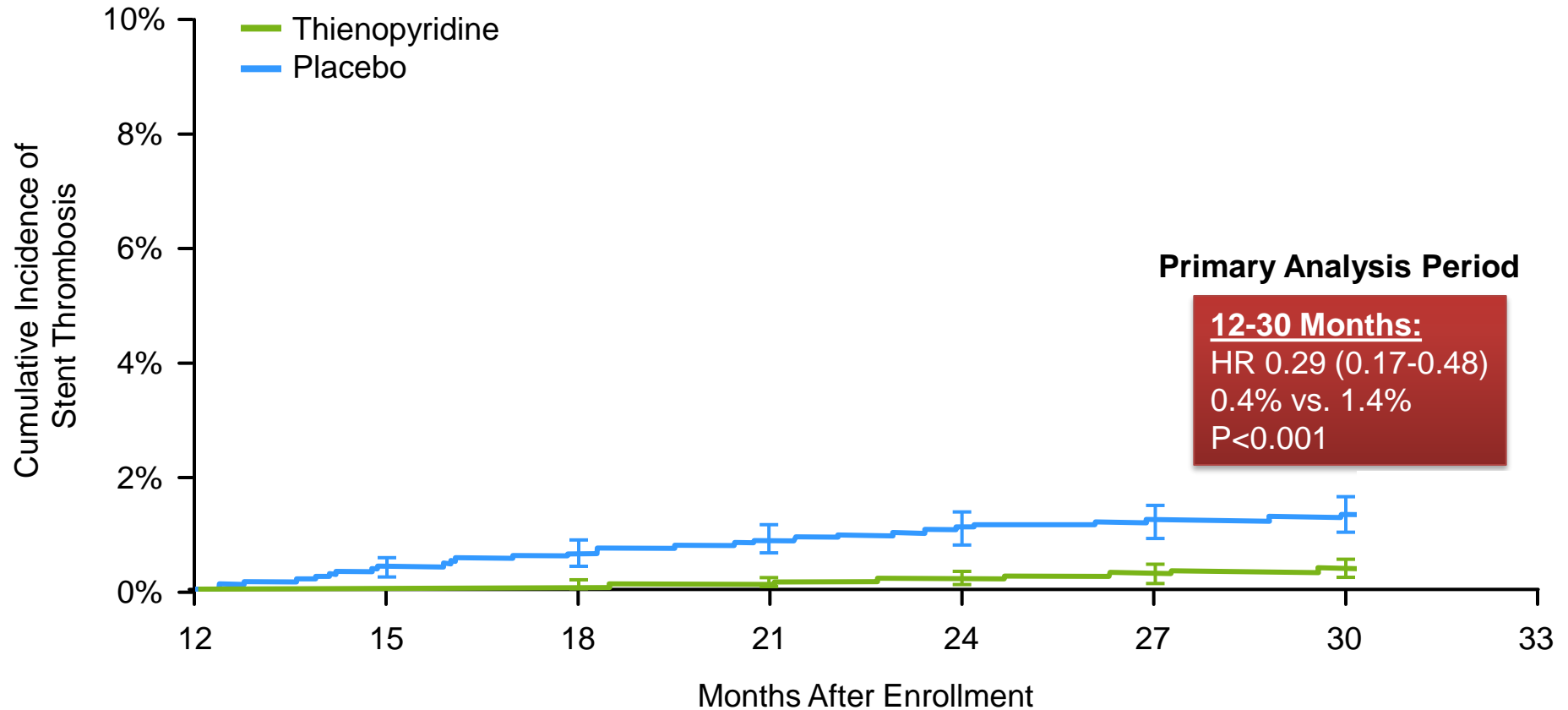
All patients with VLST with BVS were off DAPT

Impact of DAPT on VLST

DAPT Use at 2 Years



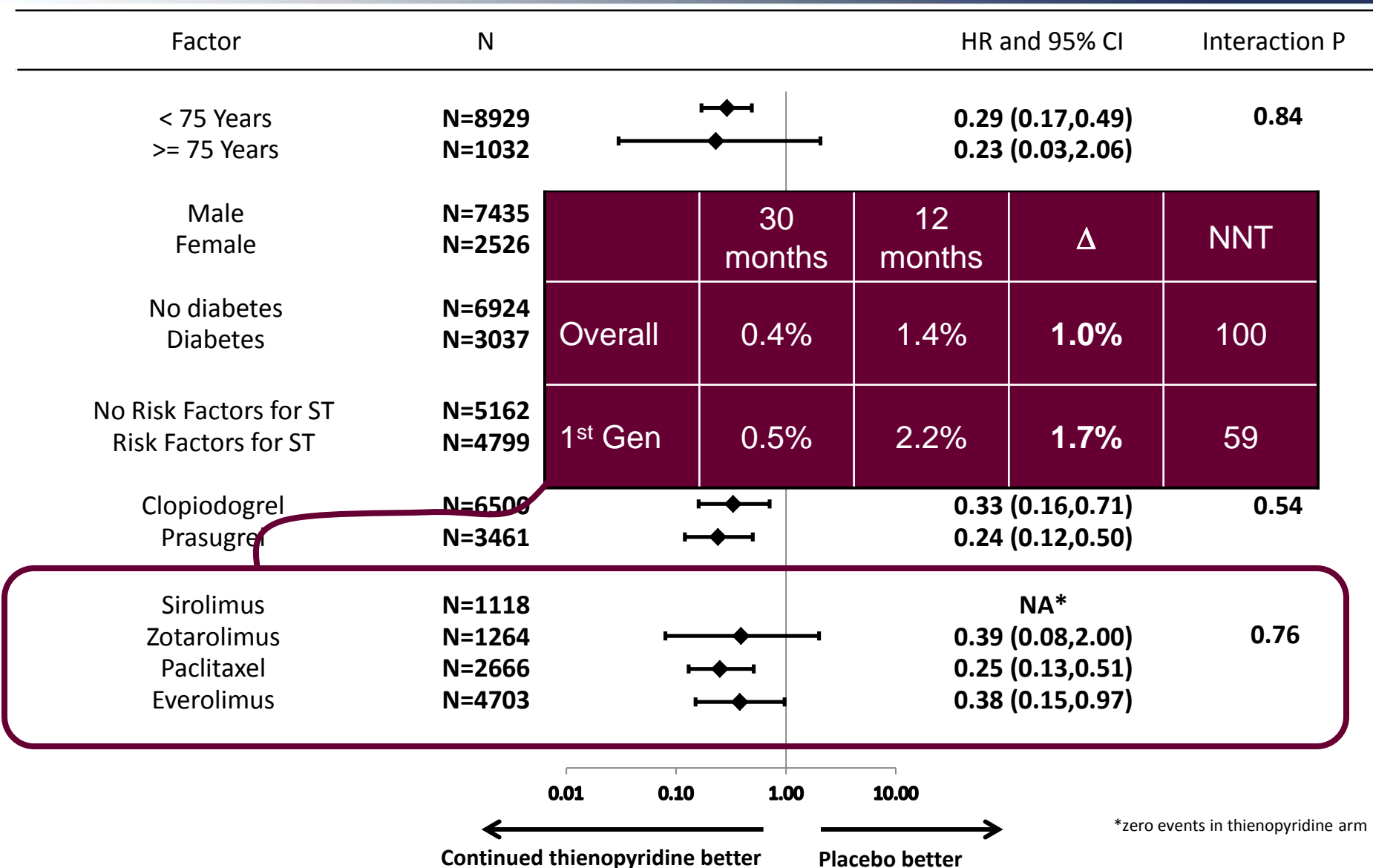
Co-Primary Effectiveness End Point Stent Thrombosis



At Risk

Thienopyridine	5020	4934	4870	4828	4765	4686	4642	3110
Placebo	4941	4845	4775	4721	4651	4603	4556	3105

Consistency of Treatment Effect Stent Thrombosis (12-30 Months)



Summary/Conclusions

- Recent data suggest that both early and late stent thrombosis are increased with the Absorb BVS compared with current generation DES
- Although theoretically attractive, it is unclear whether these trends are fully reversed with contemporary implantation techniques (PSP)
- Until rigorous data from newer trials (e.g., ABSORB 4) become available, it seems prudent to continue DAPT for at least 3 years after BVS implantation— at which point the resorption process should be complete