My Approach to Intracoronary Imaging-Master's Skill Secret

A patient-level analysis from IVUS XPL and ULTIMATE

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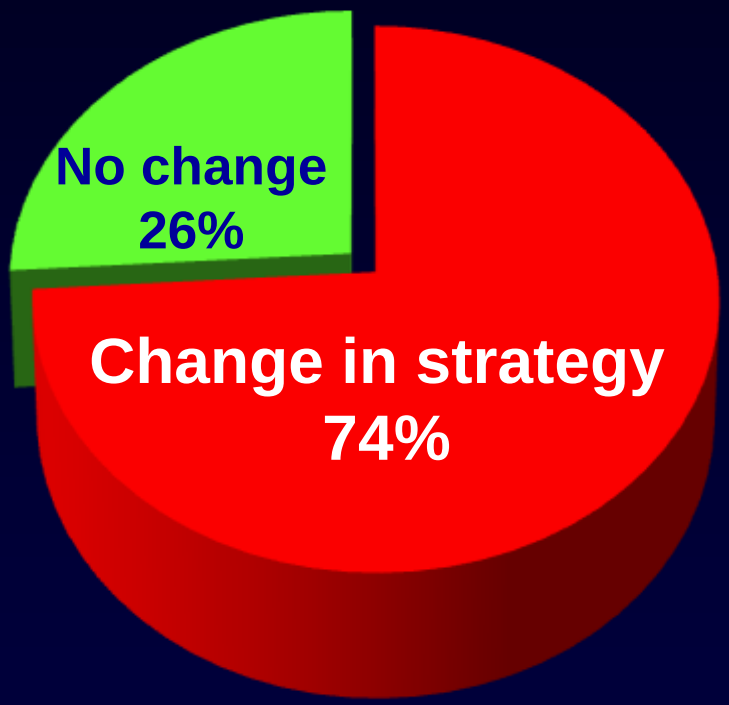
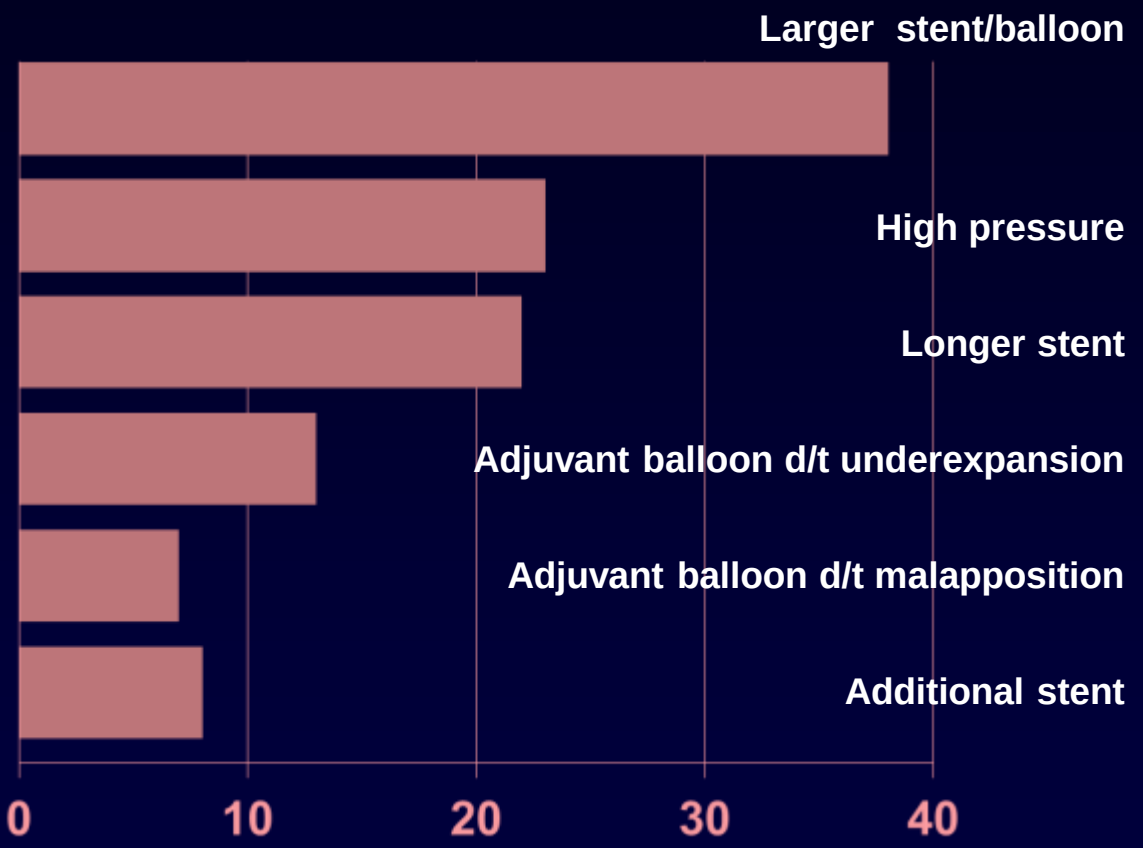
Disclosure Statement of Financial Interest

I, [Myeong-Ki Hong], DO NOT have a relevant financial relationship with any ineligible company that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

How the IVUS information influenced the procedure? From ADAPT-DES Study

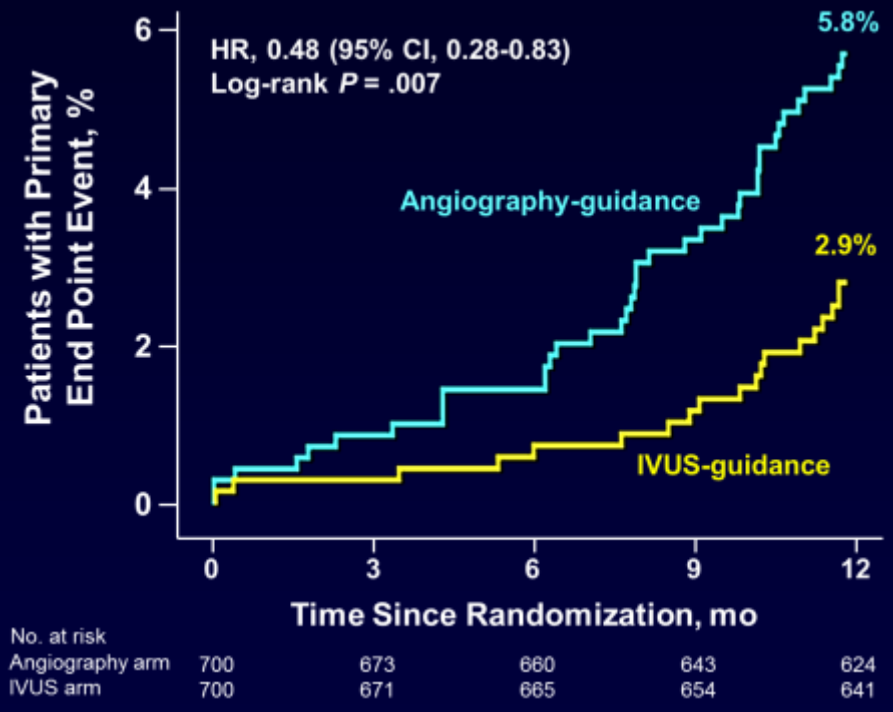


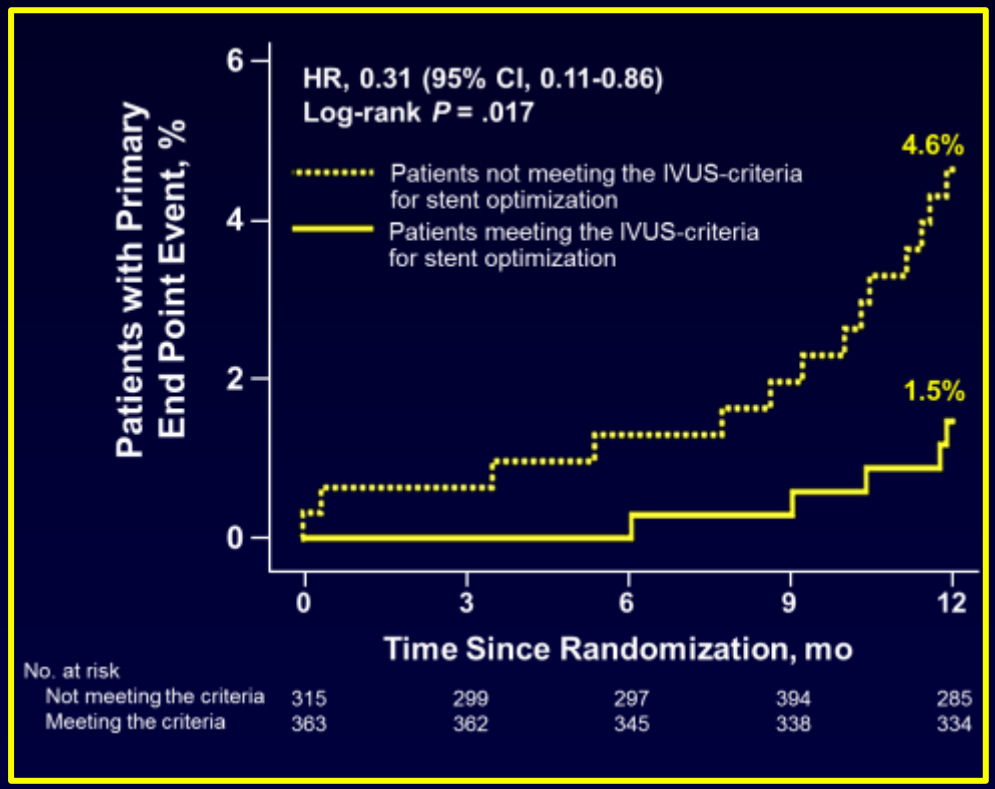


Witzenbichler B et al. Circulation. 2014;129:463-470

Diffuse long lesion: IVUS-XPL randomized trial

MACE: Cardiac death, MI, or TLR at 1 year

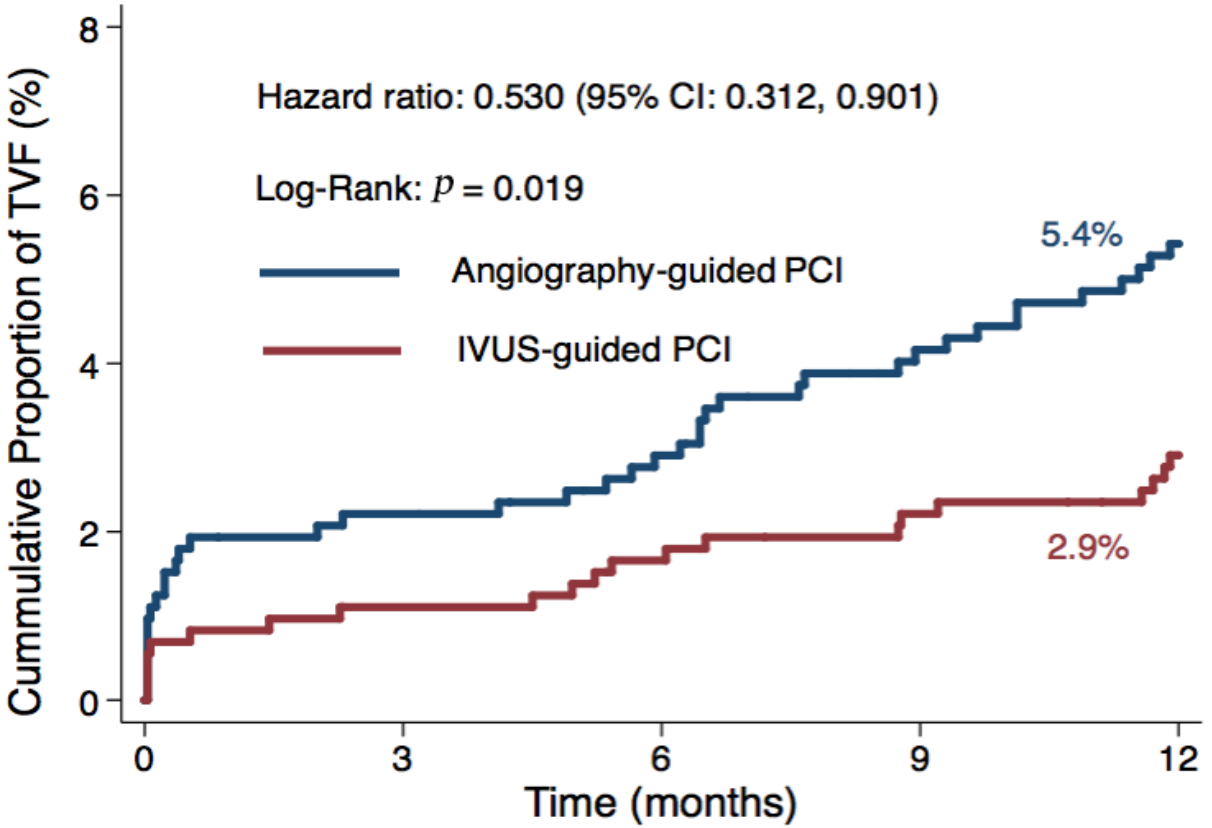




Hong SJ, Hong MK (corresponding author), et al. *JAMA* 2015;314:2155-63

ULTIMATE trial

Primary Endpoint: TVF at 12 months

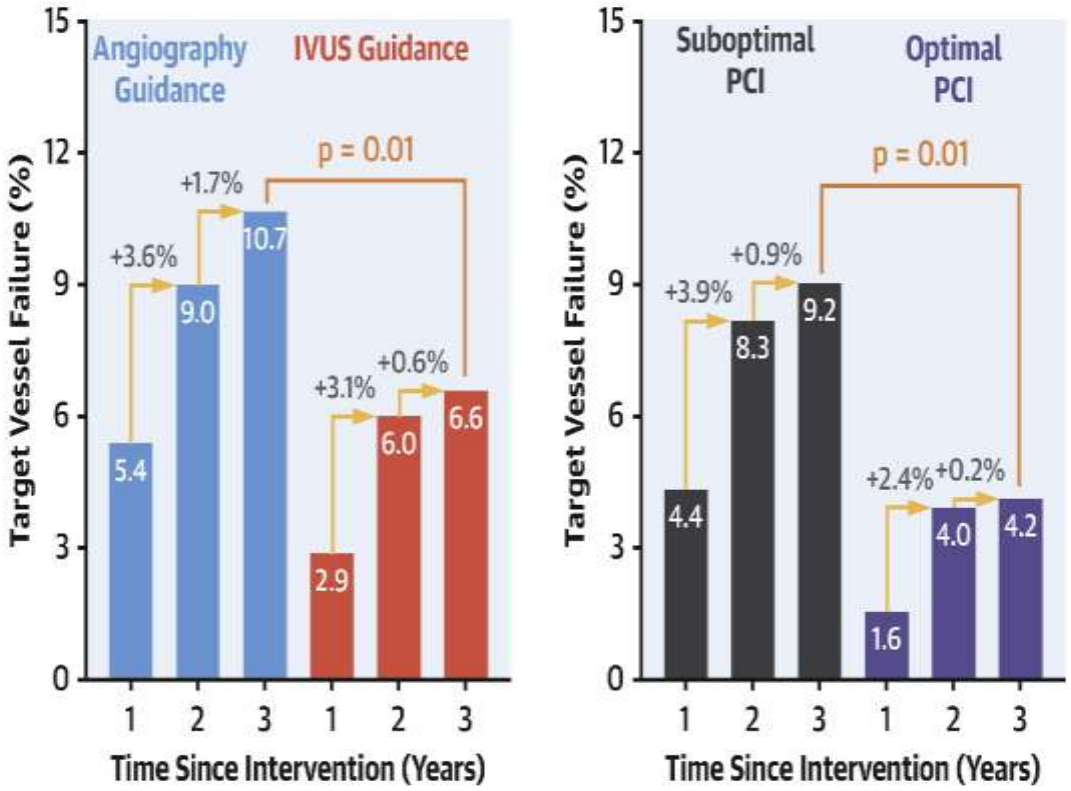


Number at risk					
Angiography	724	706	698	685	676
IVUS	724	715	710	704	696

Zhang J, et al. *J Am Coll Cardiol* 2018;72:3126-37

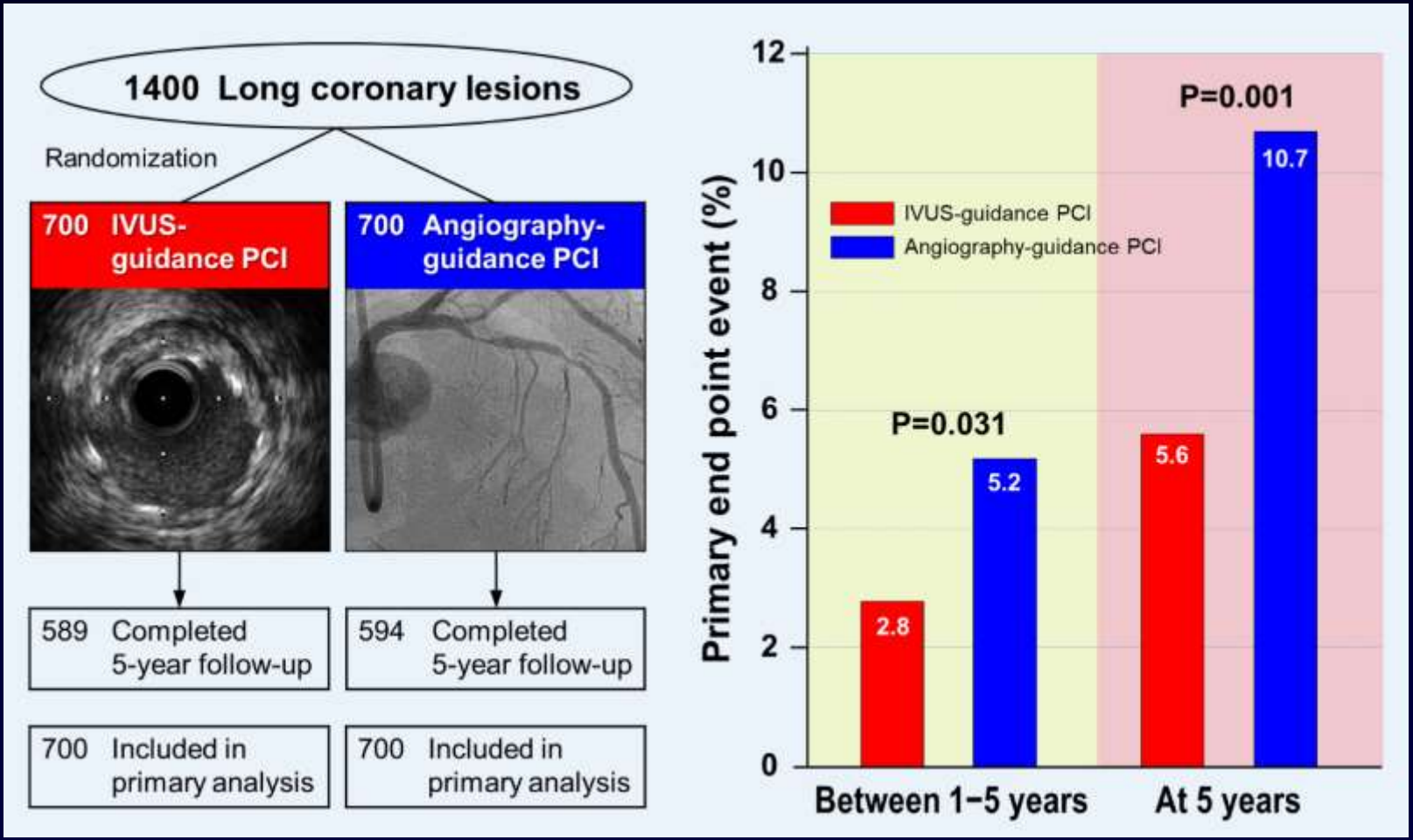
ULTIMATE trial, 3-year follow-up

CENTRAL ILLUSTRATION: 3-Year Follow-Up of the Intravascular Ultrasound Guided Drug-Eluting Stents Implantation in "All-Comers" Coronary Lesions Trial



Gao, X.-F. et al. J Am Coll Cardiol Intv. 2021;14(3):247-57.

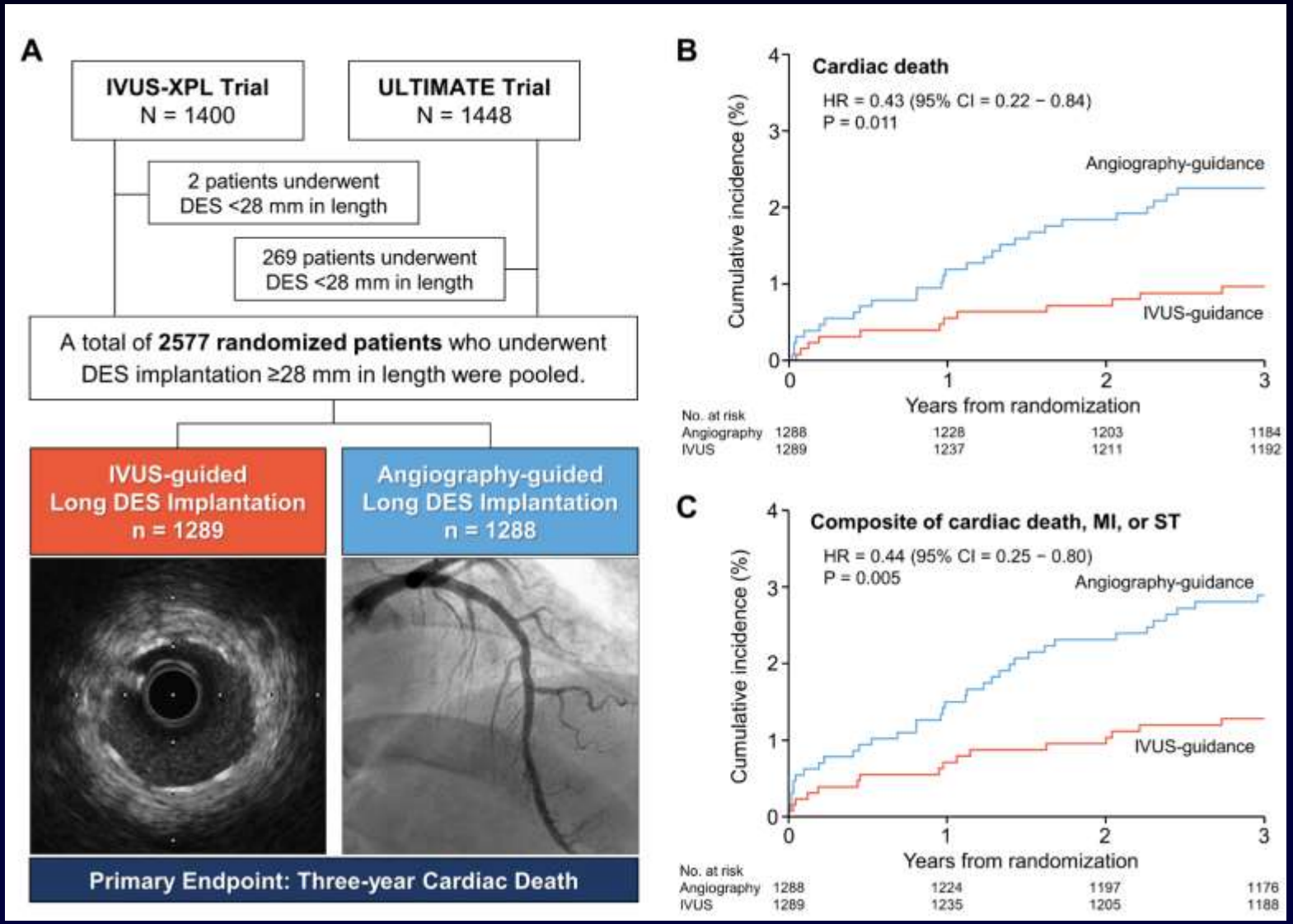
Five years follow-up of IVUS XPL trial



Hong SJ, Hong MK (corresponding author), et al. *JACC Cardiovascular Intv* 2020;13:62-71

IVUS XPL and ULTIMATE

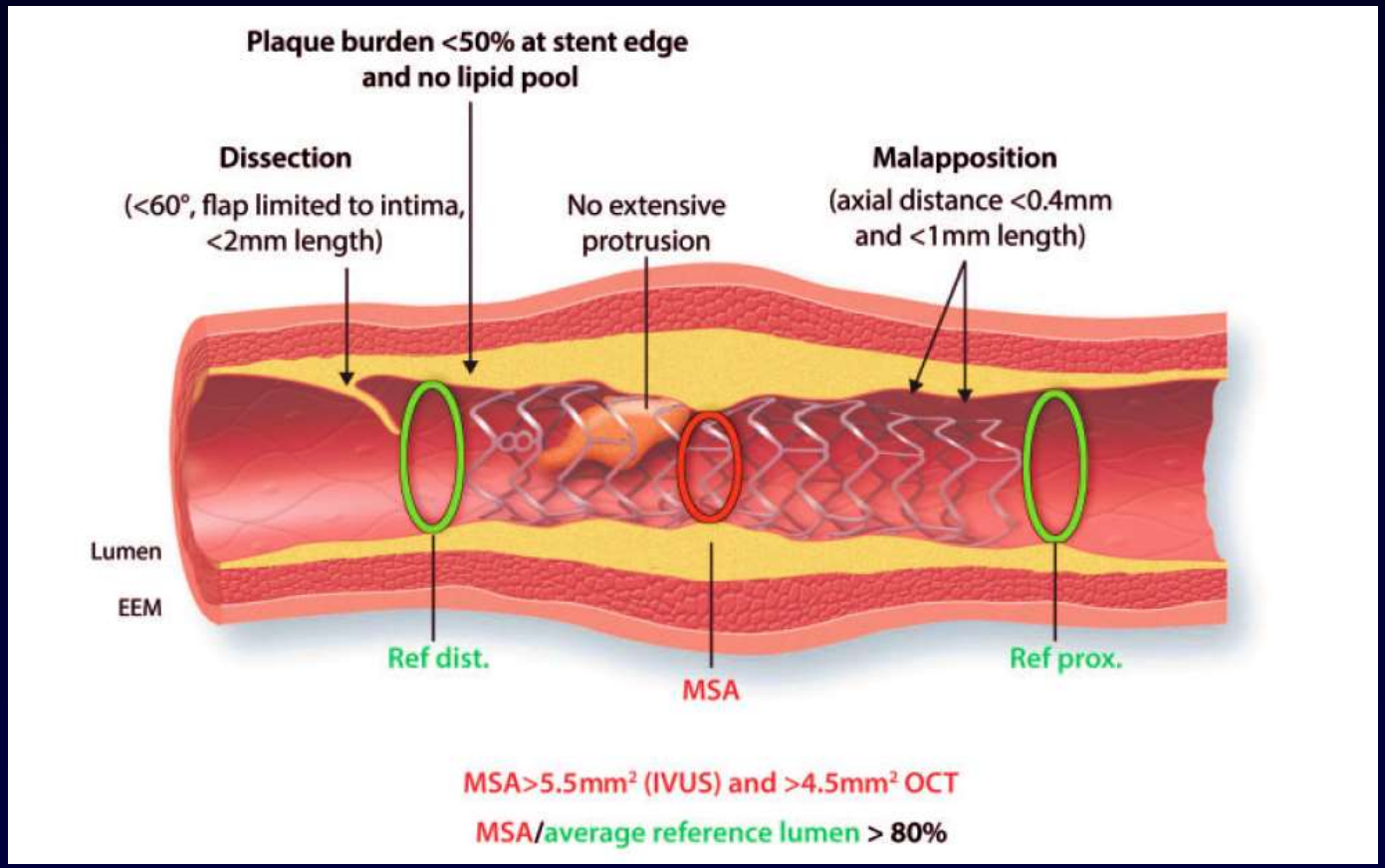
Long lesions



Hong SJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *JACC Interv* 2022;15:208-216

Stent optimization and failure

Optimization targets after stent implantation



Minimum stent area

Stent expansion

Malapposition

Tissue prolapse

Dissection

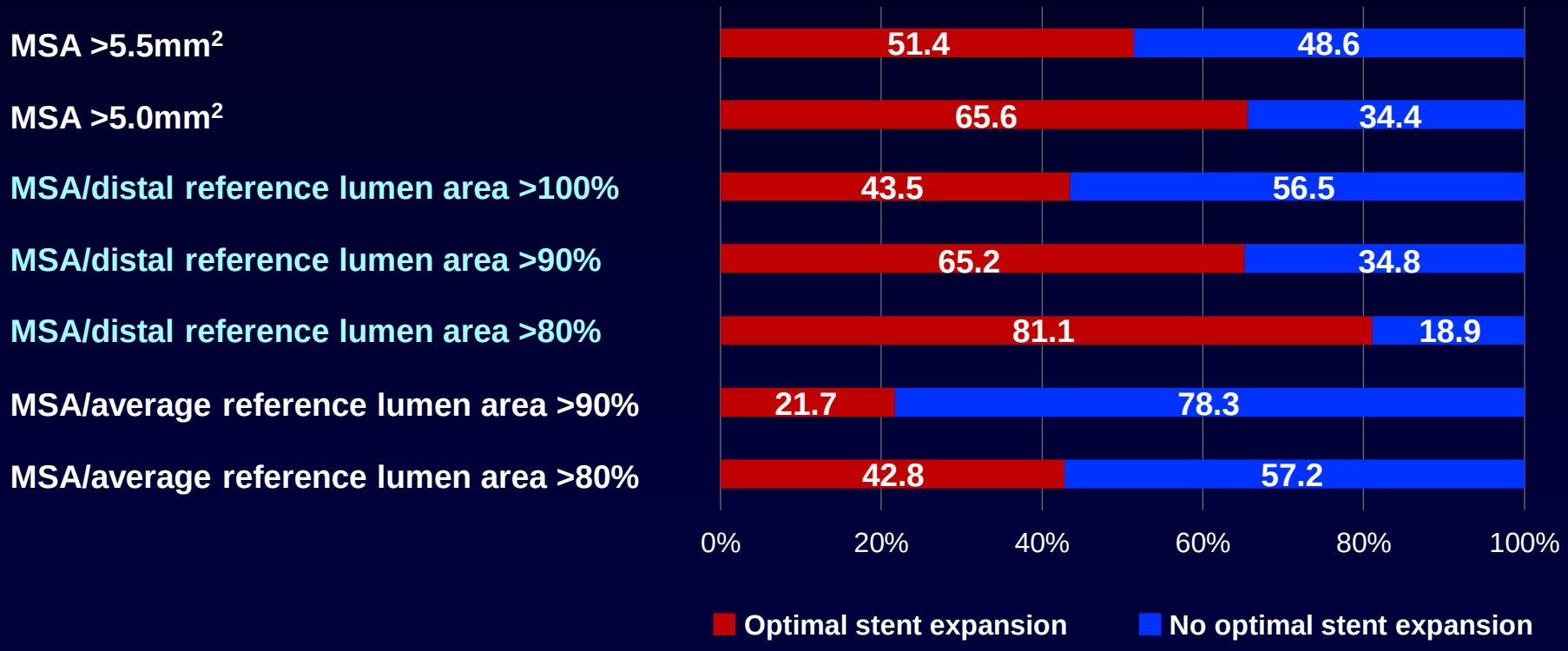
Raber L. et al. Eur Heart J 2018;39:3281-3300

Impact of IVUS-guided optimal stent expansion on long-term hard clinical outcomes (IVUS XPL and ULTIMATE)

Long lesions

Primary endpoint: cardiac death, MI or stent thrombosis at 3 years

Distribution of patients according to different optimization criteria

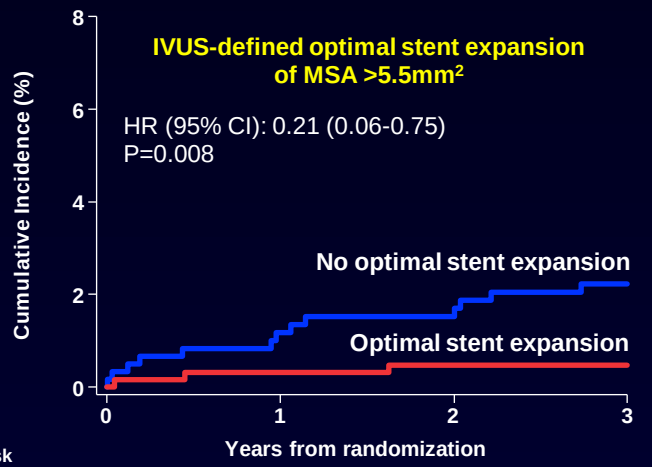


Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2021;14:e011124

Primary endpoint at 3 years

Long lesions

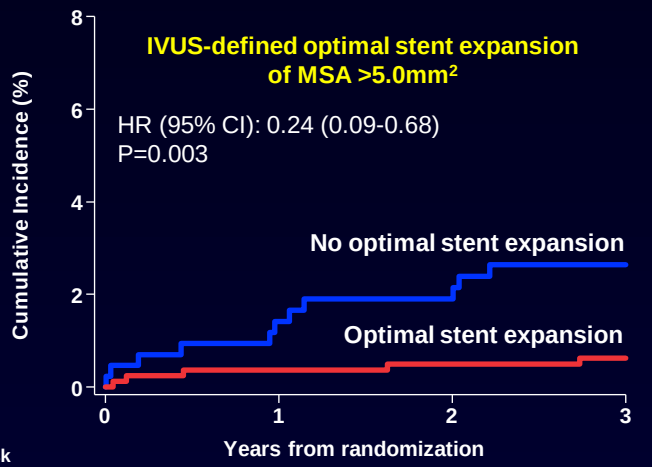
A



Number at risk

No optimal stent expansion	609	577	561	551
Optimal stent expansion	645	623	612	605

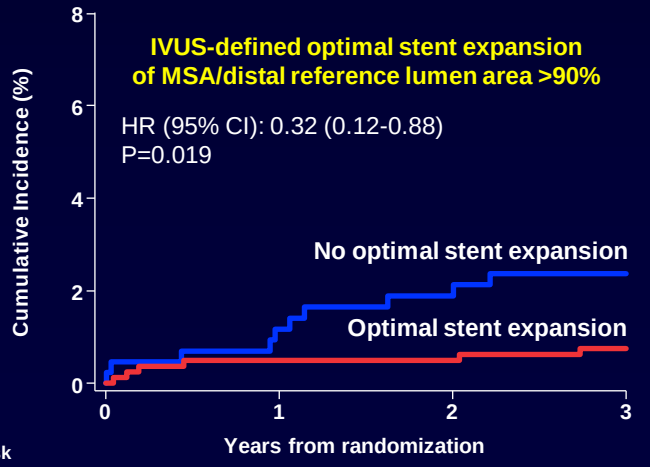
B



Number at risk

No optimal stent expansion	432	398	378	369
Optimal stent expansion	822	779	756	748

C



Number at risk

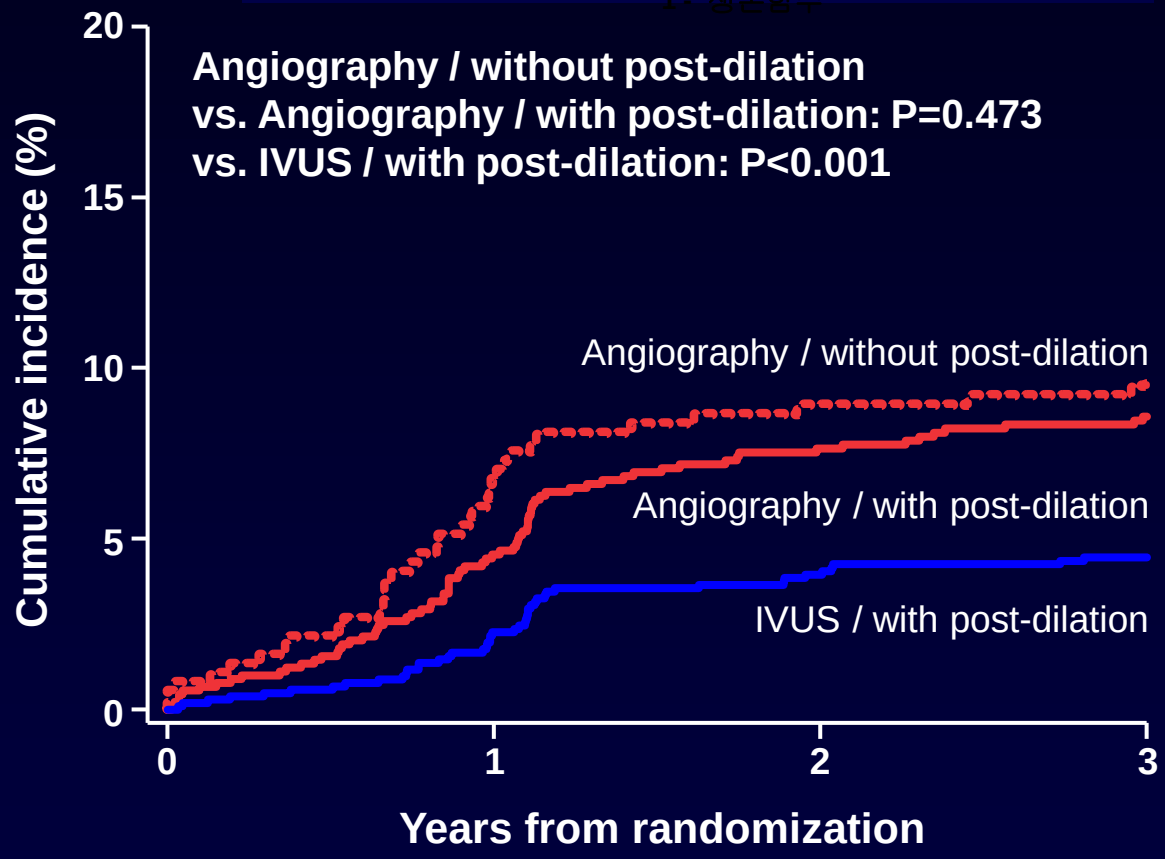
No optimal stent expansion	437	406	386	379
Optimal stent expansion	817	771	748	737

Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2021;14:e011124

Is routine post-dilation during angiography-guided stent implantation as good as IVUS-guidance?

Primary endpoint at 3 years

Long lesions



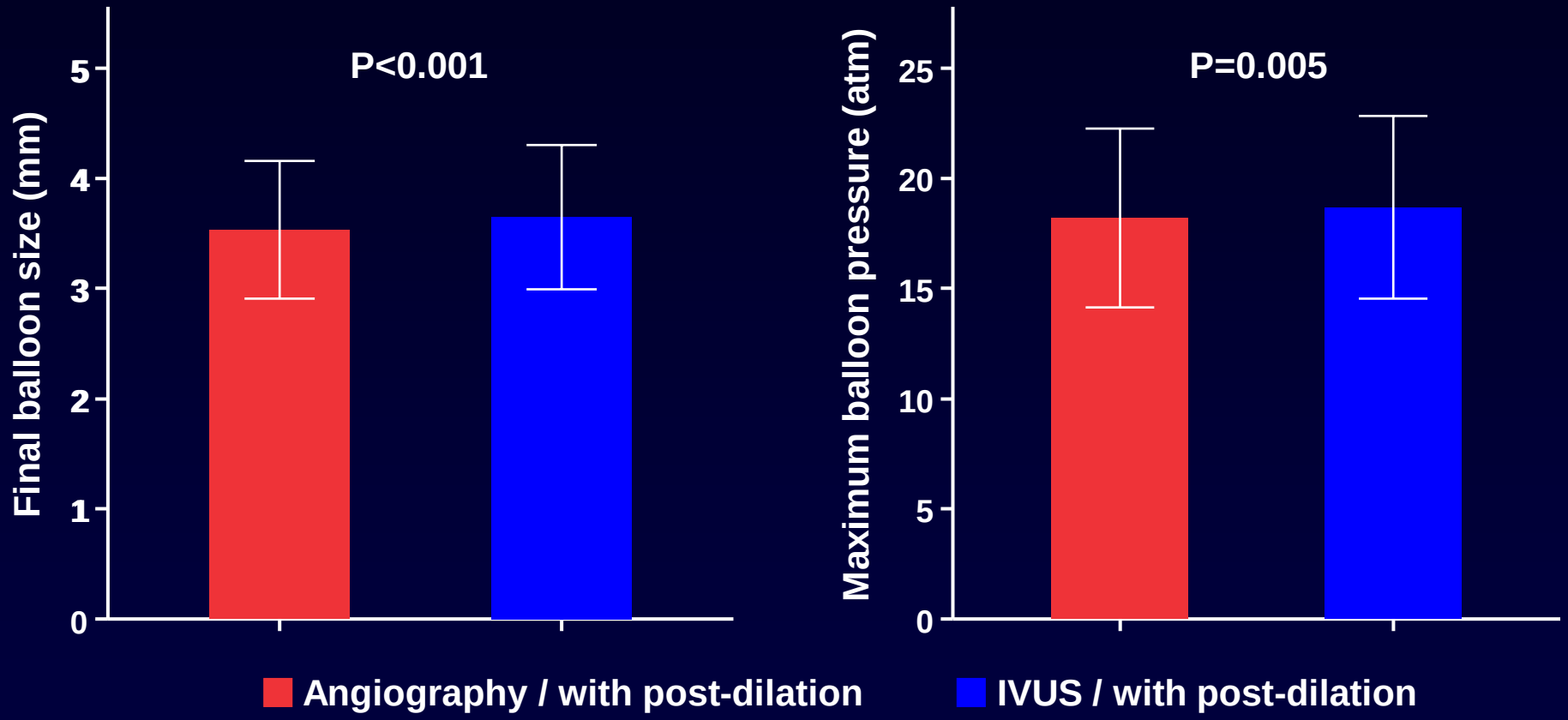
Number at risk				
Angiography / without post-dilation	383	343	330	322
Angiography / with post-dilation	905	835	796	780
IVUS / with post-dilation	1037	989	953	936

Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2022;15:e011366

Is routine post-dilation during angiography-guided stent implantation as good as IVUS-guidance?

Long lesions

Procedural characteristics during post-dilation

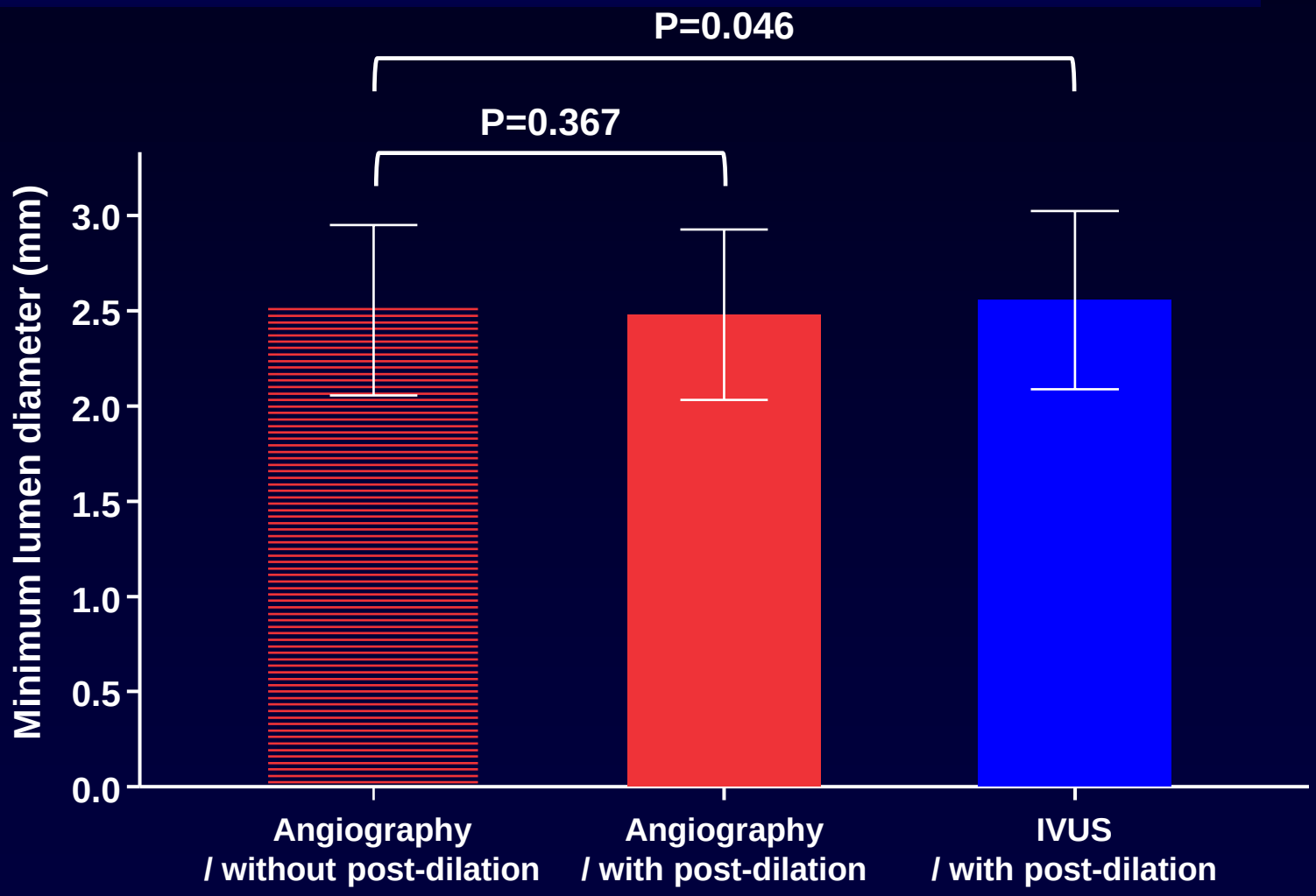


Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2022;15:e011366

Is routine post-dilation during angiography-guided stent implantation as good as IVUS-guidance?

Post-intervention minimum lumen diameter

Long lesions

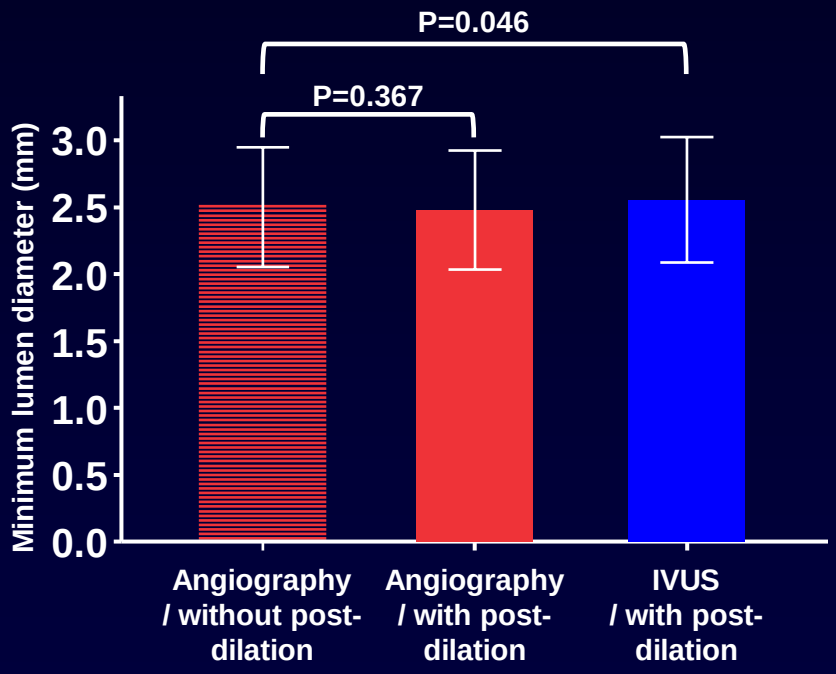


Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2022;15:e011366

Is routine post-dilation during angiography-guided stent implantation as good as IVUS-guidance?
(from IVUS-XPL and ULTIMATE trials)

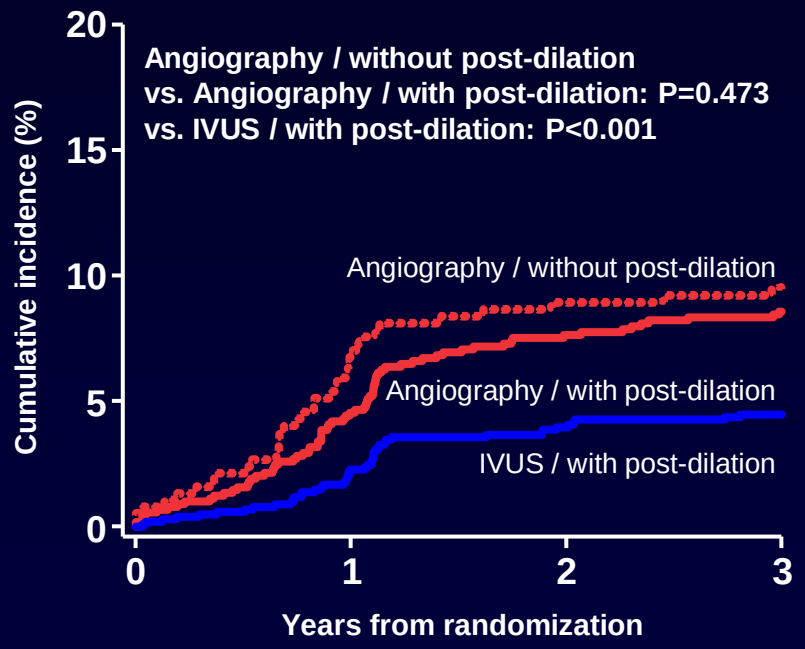
Post-procedural outcomes

Post-intervention minimum lumen diameter



Long-term clinical outcomes

Composite of cardiac death, myocardial infarction, or target lesion revascularization at 3 years



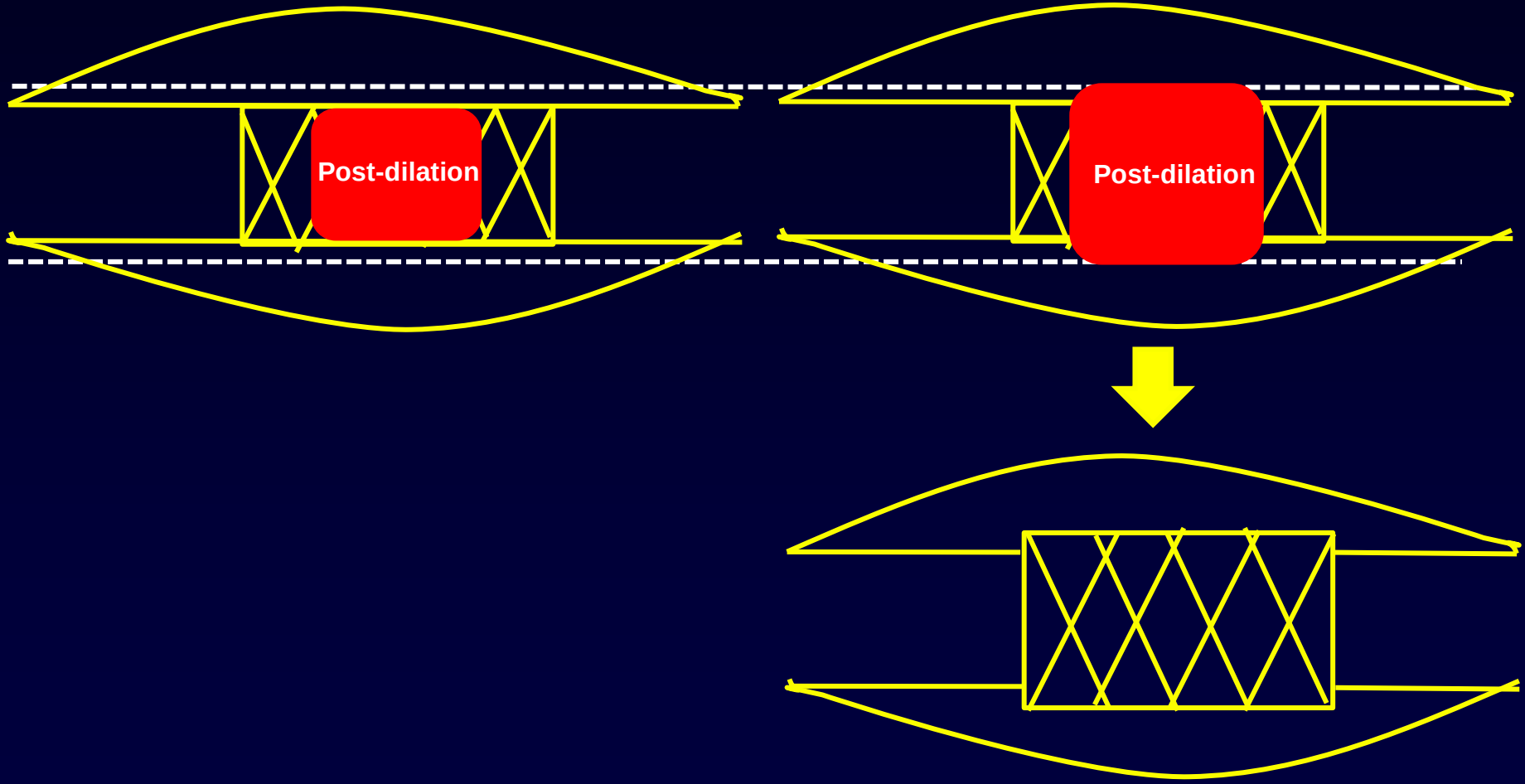
Lee YJ, Zhang JJ, Chen SL (corresponding), Hong MK (corresponding). *Circ Cardiovasc Interv* 2022;15:e011366

Angiography-guided post-dilation

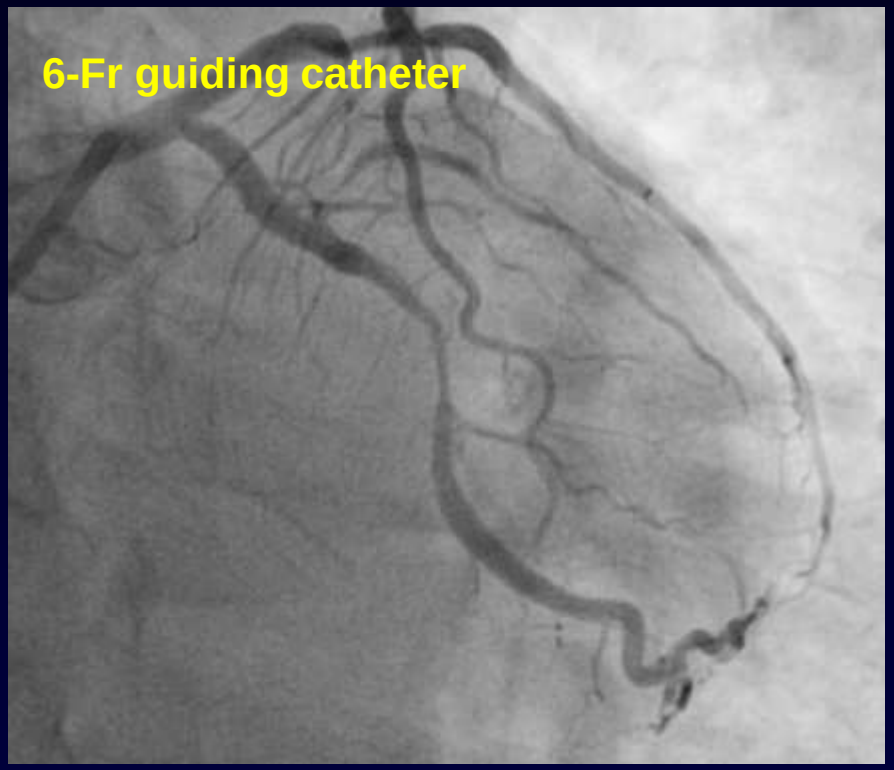
Stent-to reference vessel diameter ratio between 1.0 and 1.1

IVUS-guided (like) post-dilation

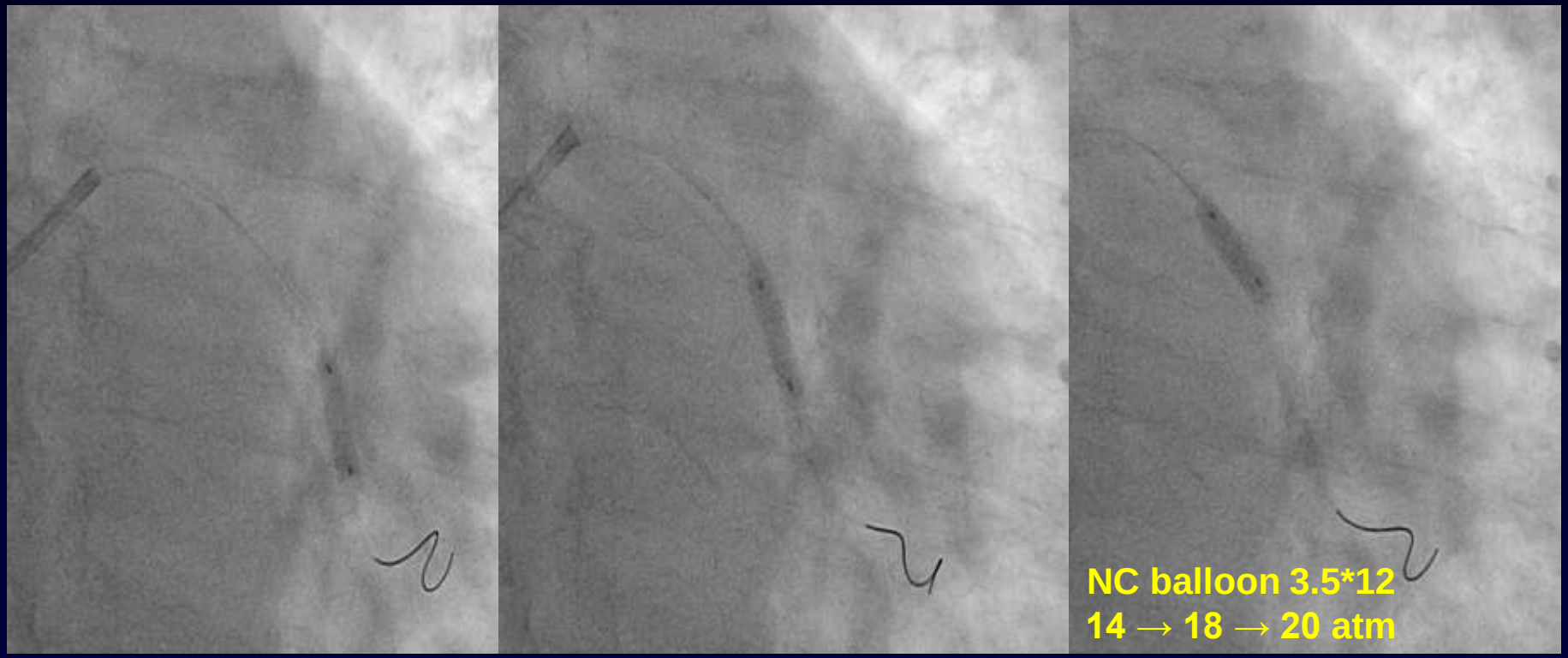
Stent-to reference vessel diameter ratio between 1.1 and 1.3



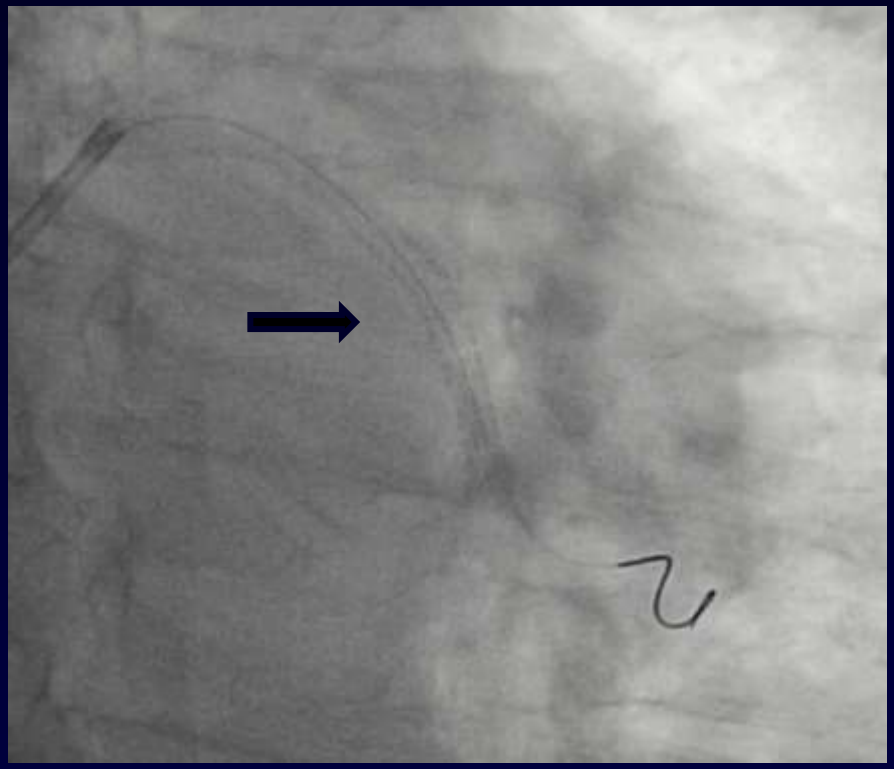
M/68, HTN/DM, Stable angina, Coronary CTA: CAD-2vd (LAD, LCX)



Post-dilation with non-compliant balloon



The possibility of coronary artery perforation when aggressive PCI is performed without use of IVUS.



Conclusion

- **The bigger by use of IVUS, the better**
- **Master's secret skill?**
- **My answer: there are no master's secret skills.**
- **Just do intravascular imaging for complex PCI.**
- **Just do your best to achieve optimal imaging criteria.**