

Similarity or Disparity of EXCEL and NOBLE

: How to Interpret and How to Apply in Real-World

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Although percutaneous coronary intervention (PCI) and coronary artery bypass surgery (CABG) are supplementary to each other, it's true PCI is still at challenging position to CABG with respect to revascularization for left main disease. In late 2016, Two randomized studies comparing PCI and CABG, EXCEL and NOBLE came out showing apparently different conclusion. One could upgrade the role of PCI to a proven alternative, the other denied and require PCI to stay as a exceptional alternative.^{1, 2} Especially for Korean doctors who recently suffered from struggles between interventional and cardiovascular surgical society, these two studies are of interest enough to go over in detail.

Hereby, I tried to critically appraise each study focused on the details easily overlooked the while.³⁻⁸

	EXCEL	NOBLE
Led by whom	US doctors Still class IIa indication at best in US Enthusiastic for upgrading	European doctors Already class I indication for low SYNTAX score
Conclusion	PCI is not inferior to CABG at median 3 year FU	CABG is still superior at median 3 year FU PCI is not yet a nice option
Primary endpoint	Death, stroke, MI (including procedural but large)	Death, stroke, nonprocedural MI, repeat revascularization
To whom		
DM	30%	15%
PCI for distal left main ds	82%	81%
PCI for bifurcated left main ds	771/942 patients (81.8%)	508/579 patients(88%)
SYNTAX score (core lab)	27	23

How to		
Two stents for bifurcated left main disease	unknown	176/508 patients (35%)
PCI with IVUS guided	77%	74%
Final kissing balloon	unknown	277/508 patients (55%)
2 stent for bifurcating left main	unknown	Culotte (23.9%)
Off-pump CABG	29%	16%
DES	Xience (98.4%)	Biomatrix and 1 st generation (11%)
At odds with findings in previous studies	Compatible 1) 12.9% Repeat revascularization at 3 year in PCI group 2) 1.3% stent thrombosis at 3 year 3) 15.4% death, MI, stroke	1) More difference between PCI & CABG in low SYNTAX subgroup 2) More late stroke after 1 year 3) Relatively higher late stent thrombosis (2 pts (<1%) at 1 year, 9 pts (3%) at 5 year, 4) Stroke < 1% at 30 days

EXCEL study can be regarded as 2nd generation DES version of SYNTAX study showing comparable clinical outcomes between PCI and CABG in low to intermediate SYNTAX score subgroup. However, relatively inferior outcomes in NOBLE study make us select carefully patient feasible for PCI. According to the findings in NOBLE study, SYNTAX score seems not reflecting necessarily angiographic characteristics appropriate for PCI if patients has stenosis in distal left main involving bifurcation. It's not surprising since SYNTAX score was originally designed for the evaluation complexity of multivessel disease.

Secondly, final kissing balloon technique is thought to make an important role on early and late outcomes. Although, it's unknown in EXCEL study, the fact final kissing balloon inflation was done only in 55% is too low to be accepted in this complex PCI procedure.

Finally, the possibility 1st generation DES affect adversely NOBLE study can't be excluded even though it was used only in 11% of patient in PCI group. From 1 year follow-up to 5 year, 7 very late stent thrombosis occurred numerically. But the rate increased from below 1% to 3%. Although it is unknown what the stent was in the events of very later stent thrombosis, 1st generation DES

(used in more than 60 patients) should be probable, because very late stent thrombosis rate was not so high in previous study using Biomatrix.⁷

It's mysterious why stroke was more common in PCI group especially after one year in NOBLE. It suggests us optimal medical therapy should be kept regardless patients are revascularized by either PCI or CABG.

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