

**Long-Term Survival Following
Multivessel Revascularization in
Patients With Diabetes:**

**Freedom Follow-On Study
*Discussion***

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Background

- Over 1 million coronary revascularization procedures are performed yearly with 35% performed in patients with diabetes.
- There is a higher incidence of adverse outcomes in patients with diabetes undergoing revascularization.
- FREEDOM, a contemporary randomized trial in diabetic patients with multivessel CAD, reported that CABG was associated with a reduction in all-cause mortality, MI and stroke when compared with PCI using DES at a median follow-up of 3.8 years.
- With better long-term outcomes associated with DES and concern over saphenous graft failure during longer-term follow-up, **FREEDOM Follow-On** was undertaken.

FREEDOM Follow-On Trial Analysis

- ***Question*** - important, new
- ***Design*** - bias, relevance, fidelity
- ***Sample Size*** - adequate
- ***Endpoints*** - justified
- ***Conclusions*** - supported by data
- ***Applicability*** - impact clinical practice

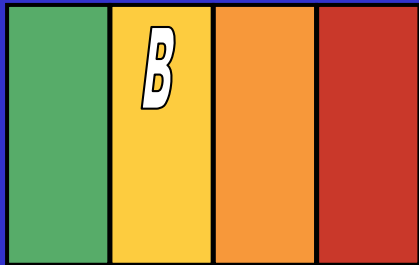
FREEDOM Follow-On Trial Analysis

- ***Question*** – important, not new, adds longer-term follow-up to evidence base
- ***Design*** – randomized, multicenter, superiority, comparative effectiveness; possible bias introduced with 49.6% participation in longer-term follow-up
- ***Sample Size*** – likely underpowered
- ***Endpoints*** – primary outcome: all cause mortality
- ***Conclusions*** – supported by data; note 83% triple vessel disease
- ***Applicability*** – support current clinical practice

Revascularization to Improve Survival Compared With Medical Therapy

2011 ACC/AHA/SCAI PCI and CABG Guidelines

I IIa IIb III



In patients with multivessel disease who also have diabetes, it is reasonable to choose CABG (with LIMA) over PCI.

2014 ACC/AHA/AATS/PCNA/SCAI/STS Focused Update SIHD

I IIa IIb III



CABG is generally recommended in preference to PCI in patients with diabetes mellitus and multivessel CAD, particularly if a LIMA graft can be anastomosed to the LAD artery, provided the patient is a good candidate for surgery.



2018 ESC/EACTS Guidelines on Myocardial Revascularization

Recommendations according to extent of CAD	CABG		PCI	
	Class ^a	Level ^b	Class ^a	Level ^b
Three-vessel CAD without diabetes mellitus				
Three-vessel disease with low SYNTAX score (0 - 22). ^{102,105,121,123,124,135,149}	I	A	I	A
Three-vessel disease with intermediate or high SYNTAX score (>22). ^{c 102,105,121,123,124,135,149}	I	A	III	A
Three-vessel CAD with diabetes mellitus				
Three-vessel disease with low SYNTAX score 0–22. ^{102,105,121,123,124,135,150–157}	I	A	IIb	A
Three-vessel disease with intermediate or high SYNTAX score (>22). ^{c 102,105,121,123,124,135,150–157}	I	A	III	A

FREEDOM Follow-On Trial Perspectives

- The long-term results of FREEDOM add to the consistent evidence base supporting CABG as the preferred strategy for patients with diabetes and multivessel CAD.
- Whether the continual evolution of new DES technology will diminish the advantage of CABG is unclear but appears less likely if the success of CABG is primarily due to protection of the myocardium against new disease.
- The contribution of additional procedures and other adverse outcomes during long-term follow-up, incomplete revascularization and importantly, newer medications for diabetes that improve cardiovascular outcomes will need to be considered to determine the optimal management of patients with diabetes and multivessel CAD.