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

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

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

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.
<table>
<thead>
<tr>
<th>Recommendations according to extent of CAD</th>
<th>CABG</th>
<th>PCI</th>
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<tr>
<td><strong>Three-vessel CAD without diabetes mellitus</strong></td>
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<tr>
<td>Three-vessel disease with low SYNTAX score (0–22).</td>
<td>I</td>
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<tr>
<td>Three-vessel disease with intermediate or high SYNTAX score (&gt;22).</td>
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<td>III</td>
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<td><strong>Three-vessel CAD with diabetes mellitus</strong></td>
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1. Reference numbers: 102, 105, 121, 123, 124, 135, 149
2. Level of evidence: I, A, IIb, III
3. Class of recommendation: I, A, III
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.