

# PCI in stable heart disease and diabetes mellitus

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# OBJECTIVE

- To provide an updated, evidence-based overview of the role of percutaneous coronary intervention (PCI) in this patients, reviewing key international studies, clinical indications, and opportunities for research and improvement in Latin America.





# INTRODUCTION

- Diabetes mellitus affected 18.3% of the Mexico population.
- Diabetes is strongly associated with greater atherosclerotic burden, quicker coronary disease progression.





- Management of stable CAD in diabetes involves:

Medical treatment

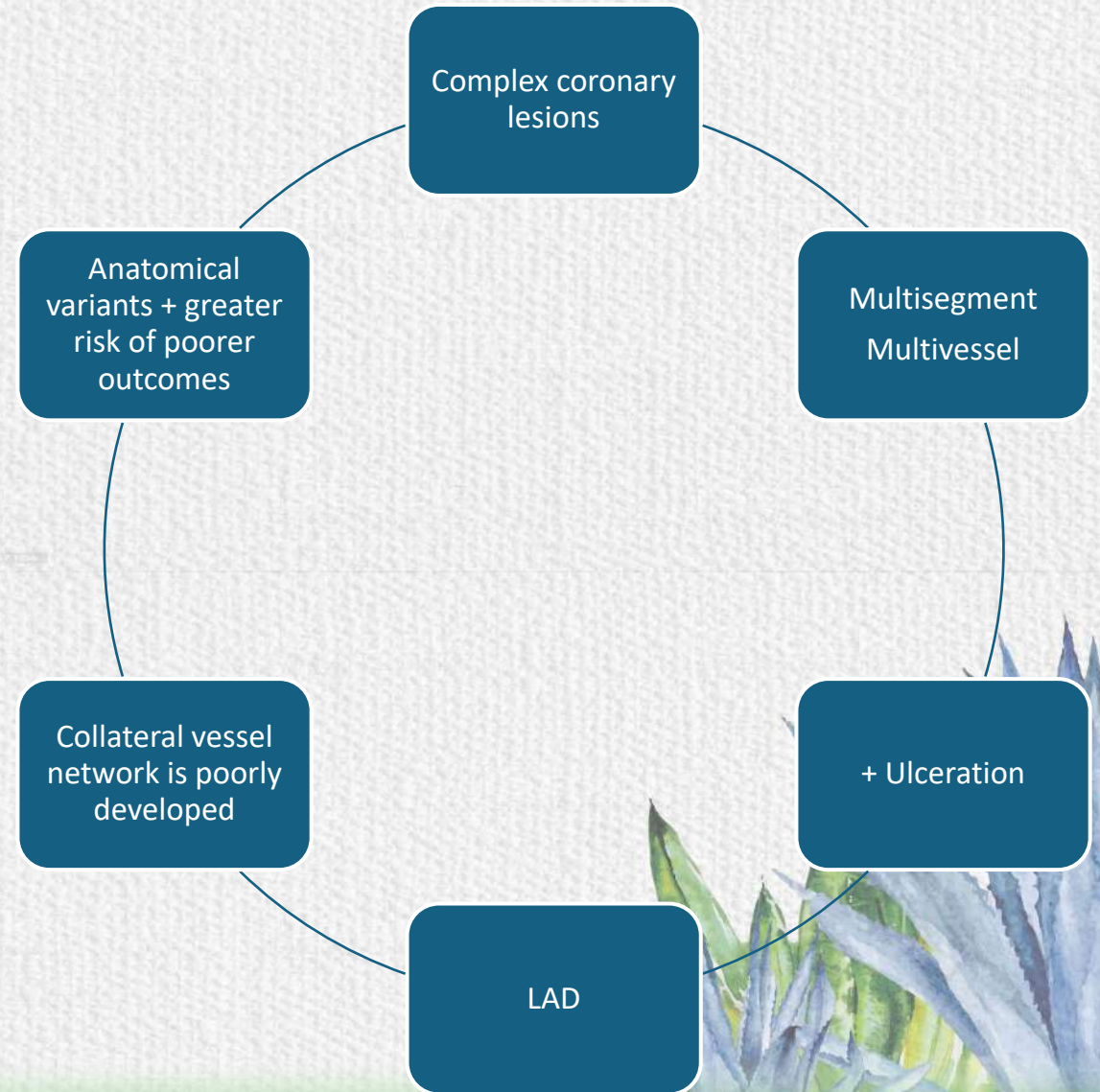
PCI

CABG



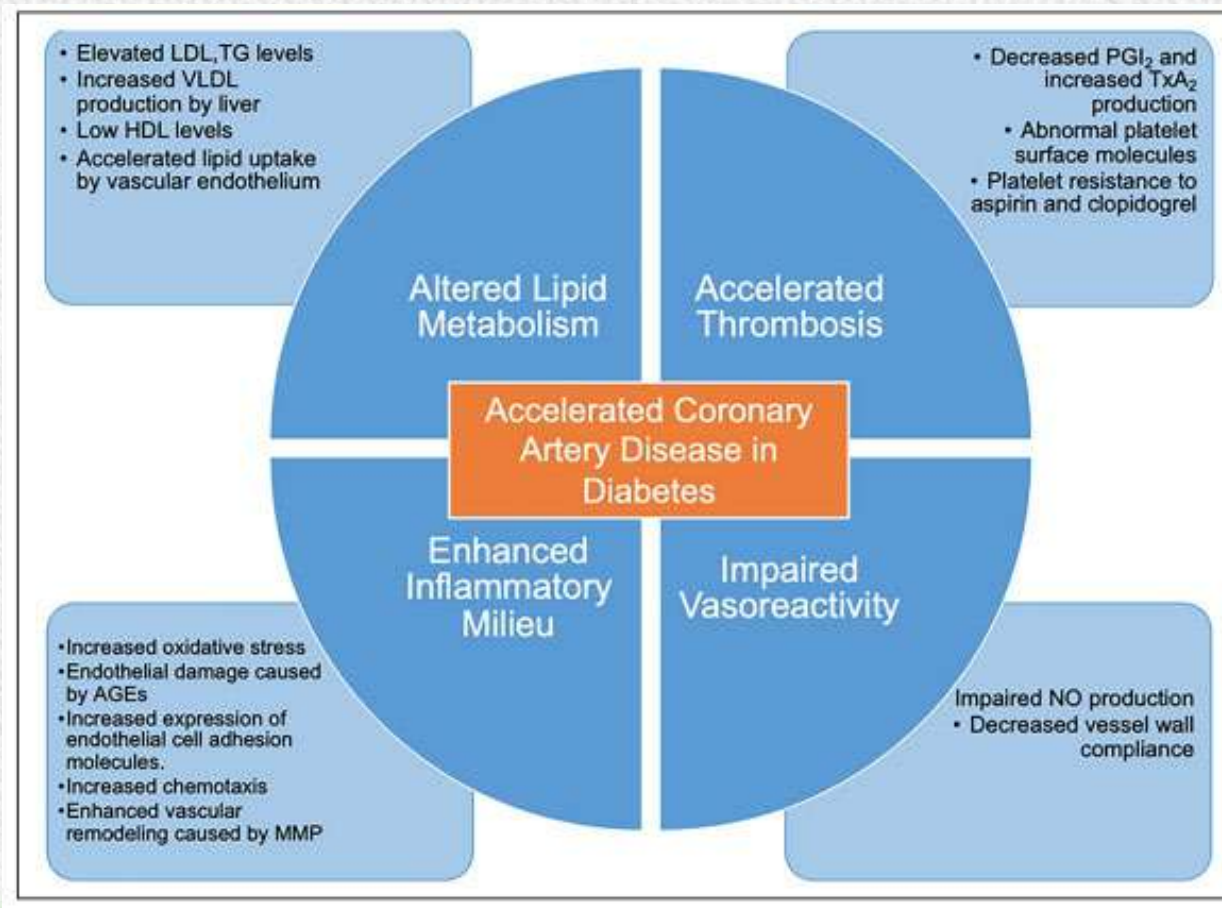
# PATHOPHYSIOLOGY

The diabetes accords a high risk of atherosclerosis:





# PATHOPHYSIOLOGY





# EVIDENCE IN MEXICO AND LATIN AMERICA

- No specific publications were found in Mexico.





- A registry in Argentina evaluated 6,300 patients undergoing PCI: 22.8% were diabetic.
- Diabetics, especially those with **insulin-dependent** diabetes had a **higher prevalence of multivessel** disease and stable angina, with **more complications** and recurrent events during follow-up (average 4 years).

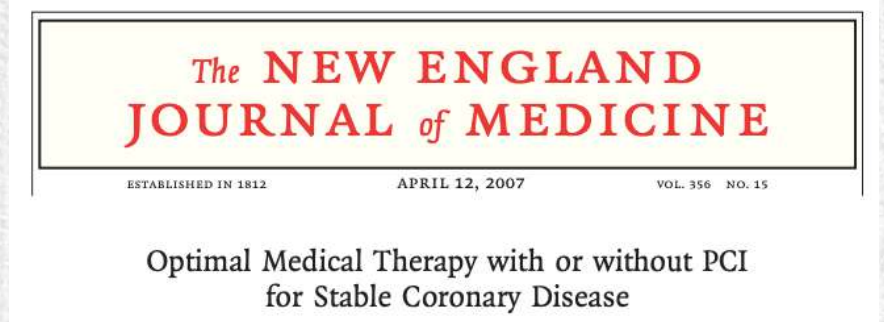


# INTERNATIONAL EVIDENCE

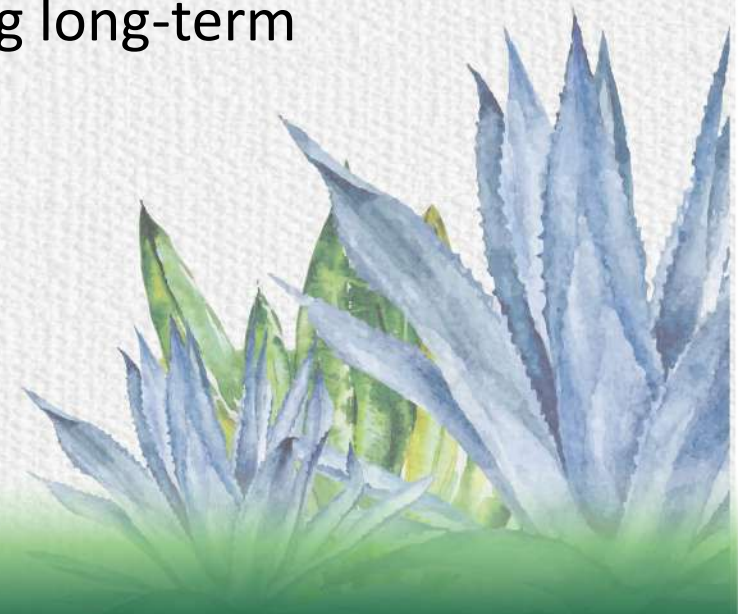




# COURAGE Trial (2007)



- Patients with stable coronary artery disease, including some with diabetes (33%).
- PCI + medical therapy vs. medical therapy alone.
- Results: There was **no difference in mortality or infarction** during long-term follow-up.
- Limitations: First-generation stents were used.
- Low representation of patients with diabetes and multivessel disease.





# "Bypass Angioplasty Revascularization Investigation 2 Diabetes" (BARI 2D, 2009)

- Diabetics with stable coronary artery disease → assigned to revascularization (PCI or CABG) vs. intensive medical treatment.
- Main finding: In the PCI group, there was **no reduction in major cardiovascular events or mortality** vs. medical treatment.
- There **was improvement in anginal symptoms**.
- PCI does not improve prognosis, but may relieve symptoms in well-selected diabetics.





# FAME 2 (2012)

The NEW ENGLAND  
JOURNAL of MEDICINE

ESTABLISHED IN 1812

SEPTEMBER 13, 2012

VOL. 367 NO. 11

Fractional Flow Reserve–Guided PCI versus Medical Therapy  
in Stable Coronary Disease

- Compared FFR-guided PCI vs. medical therapy.
- Results: PCI significantly **reduced the need for urgent revascularization and unstable angina episodes**, but did **not reduce mortality or infarction**.
- Importance in diabetics: Although not specific for DM, FFR improves the selection of functionally significant lesions, which is key in diabetics with diffuse disease.





# ISCHEMIA Trial (2020)

The NEW ENGLAND  
JOURNAL of MEDICINE

ESTABLISHED IN 1812

APRIL 9, 2020

VOL. 382 NO. 15

Initial Invasive or Conservative Strategy for Stable Coronary Disease

- Patients with moderate to severe ischemia, many with diabetes (40%).
- Results: The invasive strategy (PCI or CABG) did not reduce major events compared to medical treatment, although it did **reduce angina in symptomatic patients**.
- ISCHEMIA-Diabetes Substudy (2021):
- Confirmed that in diabetics, the invasive strategy does not improve survival, but can alleviate **symptoms**.





# FAME 3 (2025)

## Fractional Flow Reserve–Guided PCI as Compared with Coronary Bypass Surgery

- It reinforces the message that FFR-guided PCI with modern DES can achieve clinically comparable outcomes to CABG in patients with complex disease.

| Outcome                    | Adjusted HR PCI vs CABG in Diabetics  |
|----------------------------|---------------------------------------|
| ↑ Composite MACCE          | 1.44 (not statistically significant)  |
| ↑ Myocardial infarction    | 2.87 (p=0.017 – significantly higher) |
| ↑ Repeat revascularization | 1.92 (trend, p=0.067)                 |





# Selecting diabetic patients for PCI





Persisten angina despite optimal medical therapy.

Documented moderate to severe ischemia.

Lesions with confirmed physiological impact.

Coronary anatomy suitable for PCI.





# PCI differences between diabetic and non-diabetic patients (Intra PCI)

- More complex coronary anatomy.
- Increased plaque burden and negative remodeling.
- More frequent use of intravascular imaging.



# PCI differences between diabetic and non-diabetic patients (Post PCI)

- Increased risk of restenosis and repeated revascularization.
- Increased risk of stent thrombosis.
- OMT post PCI.

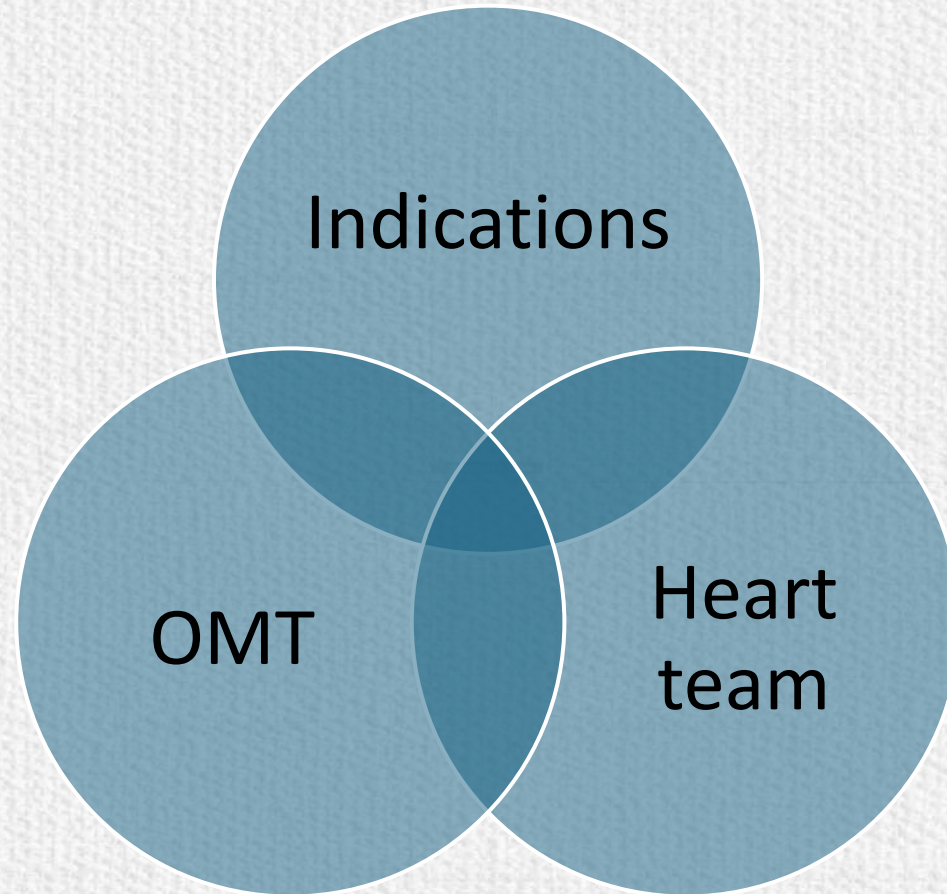




# Key success factors for PCI over CABG in diabetics

| Factor                     | PCI success if...                            |
|----------------------------|--|
| Anatomical selection       | Disease is less complex, low SYNTAX score    |
| Functional evaluation      | FFR / iFR guides the decision                |
| Technical optimization     | Use of IVUS / OCT and modern DES             |
| Multidisciplinary approach | Decision shared with Heart Team              |
| Medical therapy            | Intensive control of glucose, lipids, and BP |
| Post-PCI follow-up         | Close monitoring and timely adjustment       |







# Guidelines

## Multivessel disease<sup>d</sup> and diabetes

In CCS patients with significant multivessel disease and diabetes, with insufficient response to guideline-directed medical therapy, CABG is recommended over medical therapy alone and over PCI to improve symptoms and outcomes.<sup>801,824,871–874</sup>

**I**

**A**

In CCS patients at very high surgical risk, PCI should be considered over medical therapy alone to reduce symptoms and adverse outcomes.<sup>55,874</sup>

**IIa**

**B**



# Conclusion

- PCI does not improve survival in stable CAD but relieves symptoms in selected patients.
- In diabetics, treatment must be individualized using the Heart Team approach, functional tools, and adjunctive therapies.
- Develop more randomized trials in these patients.





# Gracias por su atención

