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# ¿Qué hacer con lesiones moderadas en tándem?

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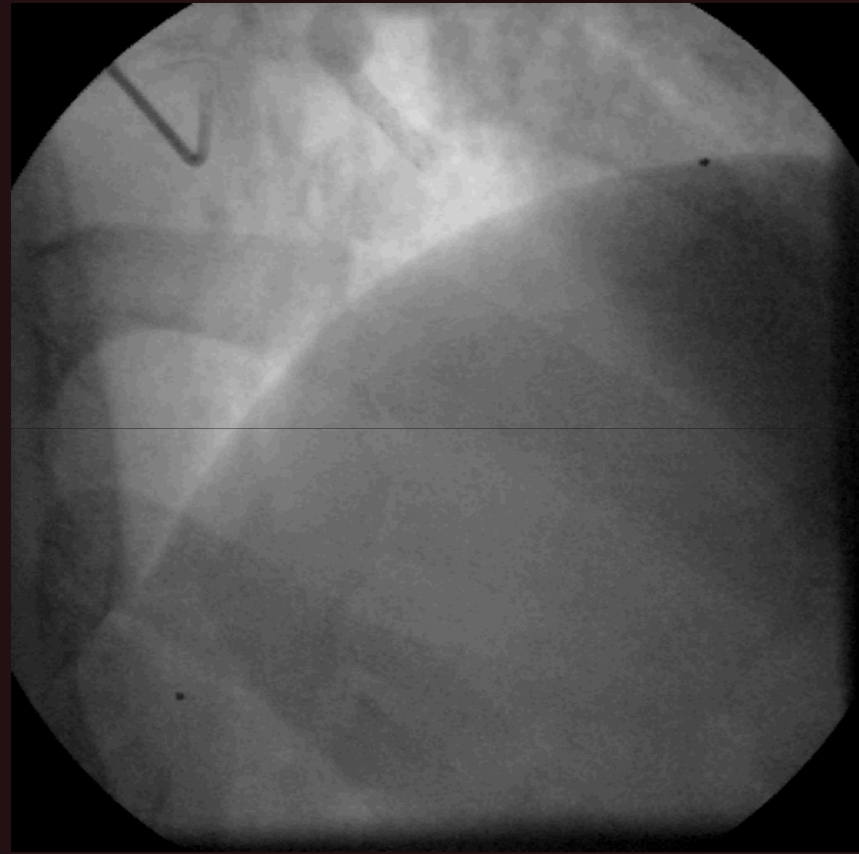
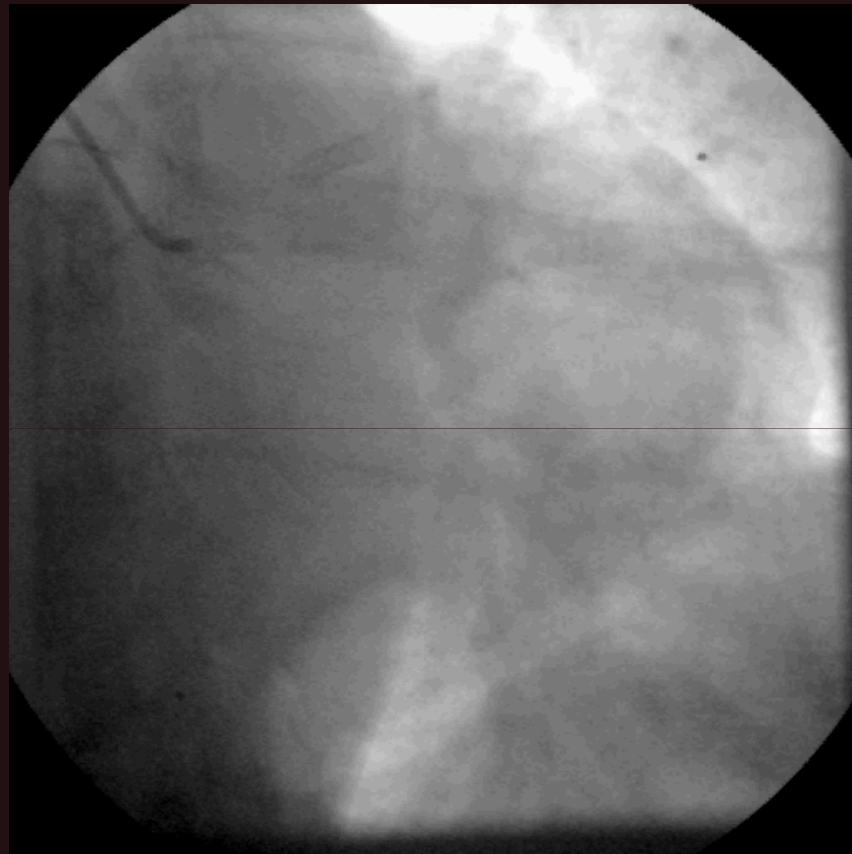
Luis M. Hernando

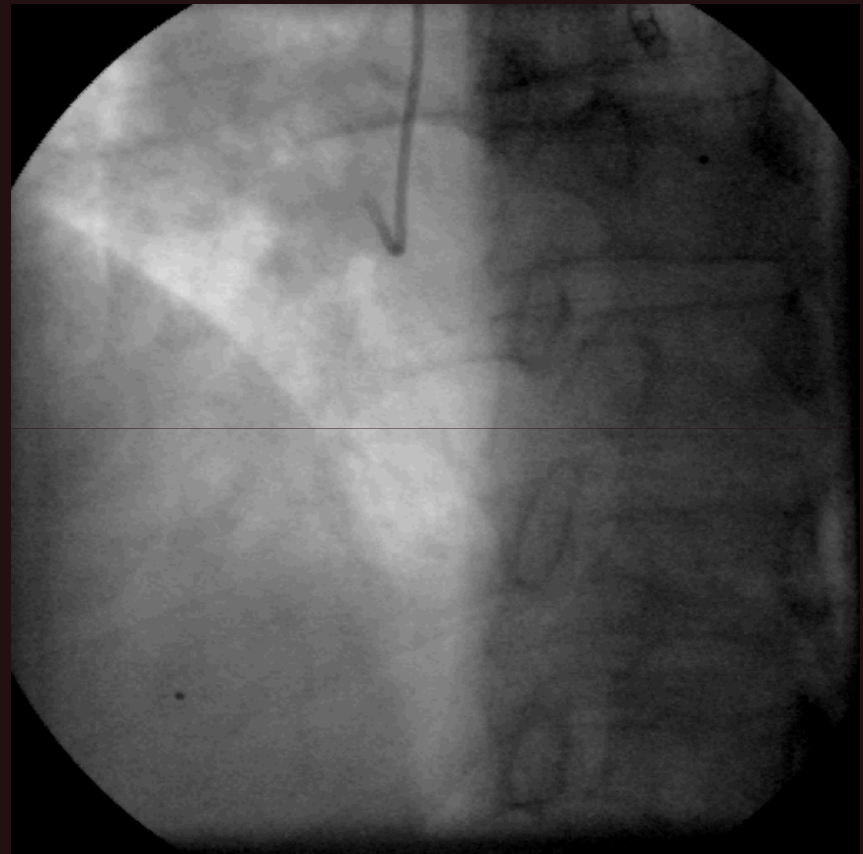
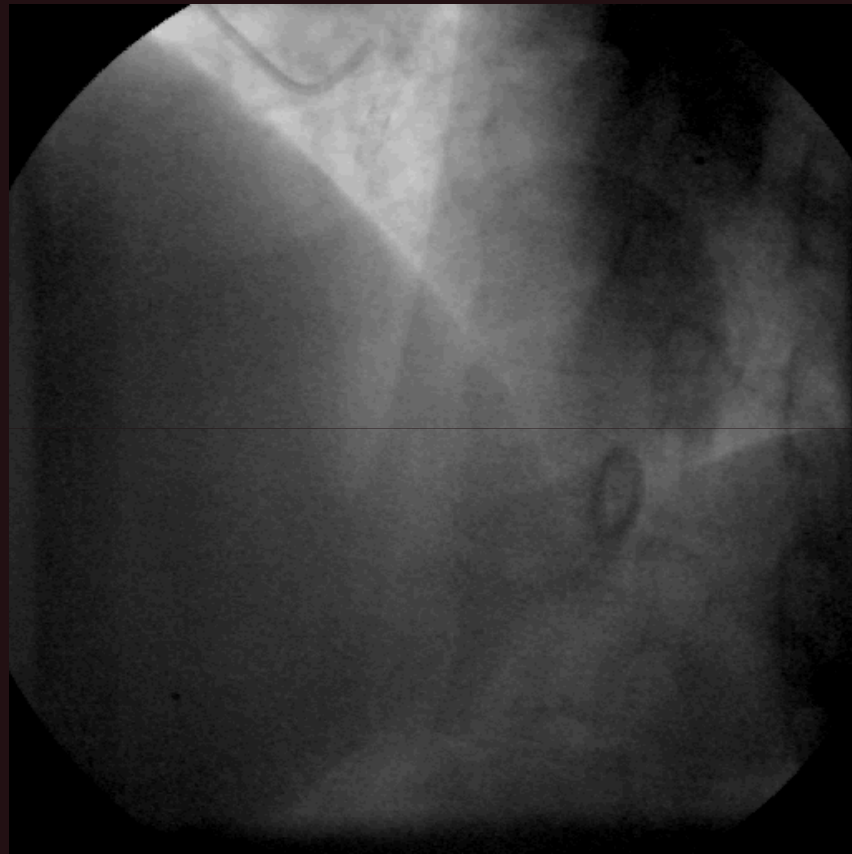
Hospital General de Castellón

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# Historia resumida

- Hombre de 54 años.
  - FRVC: HTA y dislipemia.
  - ICP a DA con BMS en 2009.
  - Ingreso actual por DT de esfuerzo.
  - Ergometría no concluyente bajo tto.
  - Tto domiciliario: AAS, bisoprolol, ramipril y simvastatina.
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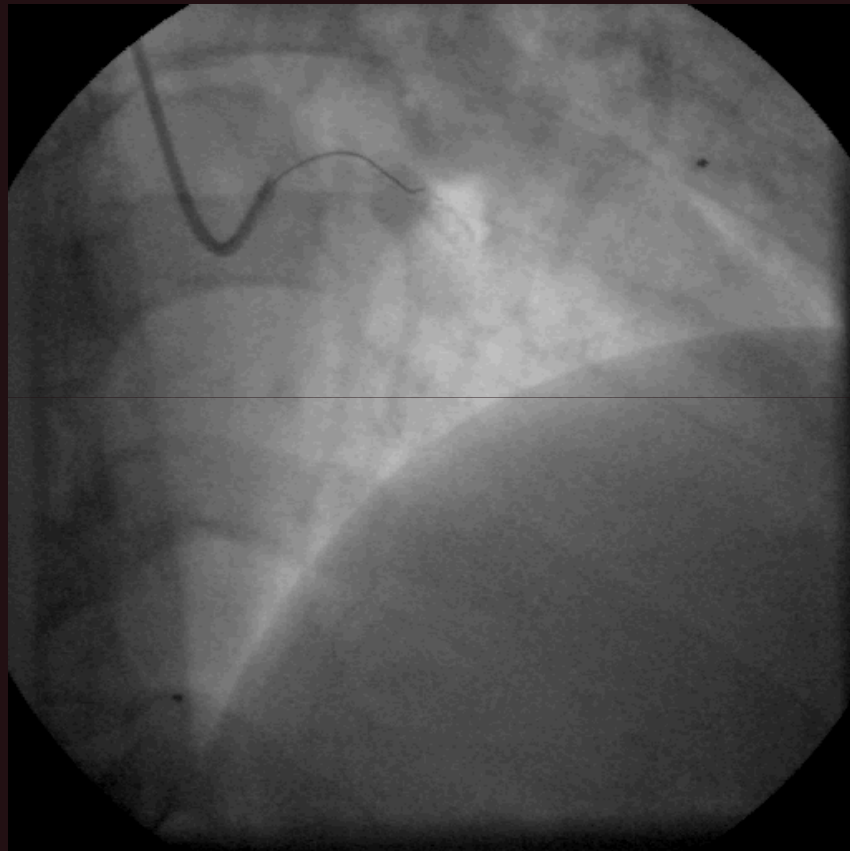




# Actuación

- Valoración con guía de presión de ambas lesiones: FFR 0,79
- Dilatación con balón de la lesión proximal.
- Nueva valoración con guía de presión: FFR 0,86

# Resultado angiográfico



## Coronary Pressure Measurement to Assess the Hemodynamic Significance of Serial Stenoses Within

### One Coronary Artery: A Prospective Study Validation

Nico H.J. Pijls, MD, PhD; Bernard De Bie, MD, PhD; Francesco Liistro, MD; G. J. van den Bruggen, MD, PhD; Hans J.R.M. Bonnier, MD, PhD

**Background**—When several stenoses are present within 1 coronary artery, the hemodynamic significance of each is influenced by the presence of the other(s), and the calculation for each individual stenosis is confounded. Recently, we developed a method to assess the true FFR of each stenosis as it would be after the removal of the other stenoses by coronary pressures measured before treatment and after treatment accounting for stenosis interaction. The aim of the present study was to validate this method.  
**Methods and Results**—In this study of 32 patients with 1 or more stenoses, the true FFR of each stenosis (FFR<sub>true</sub>) was directly measured after treatment of the other stenoses. The predicted FFR (FFR<sub>pred</sub>) from the initial pressure measurements was compared with the true FFR. FFR<sub>true</sub> increased significantly (from 10±7 to 19±11%) after treatment of the other stenoses. The difference between FFR<sub>true</sub> and FFR<sub>pred</sub> in all patients (0.78±0.12 versus 0.78±0.11) was not significant. In the presence of stenosis interaction, the value of FFR for each stenosis would be underestimated.  
**Conclusions**—Coronary pressure measurements made by the present method are a practical method for assessing the individual hemodynamic significance of stenoses within 1 coronary artery. (Circulation. 2000;102:2371-2377.)

**Key Words:** pressure measurement; stenosis; coronary artery disease

The fluid, dynamic interaction of multiple sequential stenoses in coronary arteries is complex, often unexpected, and cannot be adequately assessed by visual interpretation on the coronary angiogram.<sup>1</sup> Although described by computerized analysis of the entire coronary tree and assessed noninvasively by PET perfusion imaging,<sup>1,2</sup> these interactions have never been quantified in humans by direct intracoronary pressure or flow measurements.

A well-established method of assessing the hemodynamic severity of single stenosis in coronary arteries uses Doppler wires to measure coronary flow reserve (CFR) or pressure wires to measure fractional flow reserve (FFR).<sup>3,4</sup> However, differ-

### MINI-FOCUS ON FRACTIONAL FLOW RESERVE Clinical Research

## Clinical and Physiological Outcomes of Fractional Flow Reserve-Guided Percutaneous Coronary Intervention in Patients With Serial Stenoses Within One Coronary Artery

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**Objectives** This study was performed to evaluate the physiological and clinical outcomes of fractional flow reserve (FFR)-guided revascularization strategy with drug-eluting stents in serial stenoses within the same coronary artery.

**Background** Identifying a functionally significant stenosis is difficult when several stenoses exist within 1 coronary artery.

**Methods** A total of 131 patients (141 vessels and 298 lesions) with multiple intermediate stenoses within the same coronary artery were assessed by FFR with pullback pressure tracings. In vessels with an FFR <0.8, the stenosis that caused the largest pressure step-up was stented first. Major adverse cardiac events were assessed during follow-up.

**Results** FFR was measured 239 times and there were no procedure-related complications. There was a weak negative correlation between FFR and angiographic percent diameter stenosis ( $r = -0.282, p < 0.001$ ). In total, 116 stents were implanted and revascularization was deferred in 61.1% (182 of 298) of lesions. When the vessels with an initial FFR <0.8 were divided into 2 groups according to FFR after first stenting (FFR ≥0.8 vs. FFR <0.8), there were no differences in baseline angiographic and physiological parameters between the 2 groups. During the mean follow-up of 501±211 days, there was only 1 target vessel revascularization due to in-stent restenosis. There



## How to use the drug-eluting balloon: recommendations by the German consensus group

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3. Klinikum Coburg, Germany; 4. Universitätsklinikum des Saar

### Introduction

The drug eluting balloon (DEB) has demonstrated safety and efficacy for treatment of restenosed and *de novo* lesions in coronary artery disease in several clinical trials. Late lumen loss at follow-up is consistently low (~0.2 mm), and no thrombotic event has been reported when using the DEB (Sequent<sup>®</sup>Please) as a stand-alone therapy.

Some issues remain when combining the DEB with a bare metal stent (BMS), since geographic mismatch (DEB does not cover total stented area) between DEB and BMS can not always be avoided. The combination of the DEB with a BMS further results in a somewhat higher late lumen loss comparable to paclitaxel eluting stent.

### Summary of late lumen loss in PEPCAD trials

Study	DEB	BMS	Author
ISR I/II (vs. POBA)			
PEPCAD I (SVD)			
PEPCAD II (ISR vs. Taxus <sup>™</sup> )			
PEPCAD III (vs. Cypher <sup>™</sup> )			
PEPCAD IV (Diabetes)	-	0.51	Rosli MA <sup>6</sup>
PEPCAD V (Bif. lesions)	0.21 (SB)	0.38 (MB)	Mathey DG <sup>7</sup>
PEPCAD CTO	-	0.64	Wöhrle J, Werner GS <sup>8</sup>
PERFECT (+EPC stent*)	-	0.34	Wöhrle J <sup>9</sup>

Clinical Research | January 2014

## A Randomized Comparison of Drug-Eluting Balloon Versus Everolimus-Eluting Stent in Patients With Bare-Metal Stent In-Stent Restenosis: The RIBS V Clinical Trial ONLINE FIRST

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### Abstract

**Objective** We sought to compare the efficacy of drug-eluting balloons (DEB) and everolimus-eluting stents (EES) in patients with bare-metal stent (BMS) in-stent restenosis (ISR).