

# Pressure Wire Measurement for a Intermediate Stenosis of Superficial Femoral Artery in a Patient with Intermittent Claudication.

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I have **no disclosure** and **financial support**.

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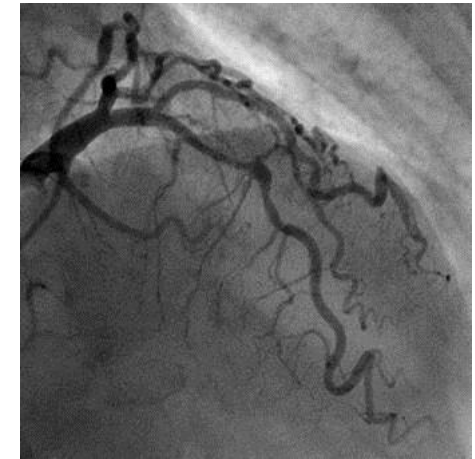
# Introduction

## Functional assessment of coronary stenoses: can we live without it?

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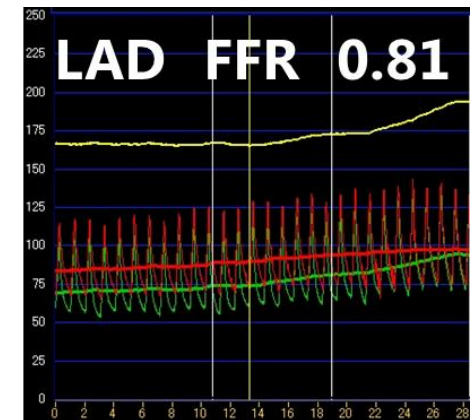
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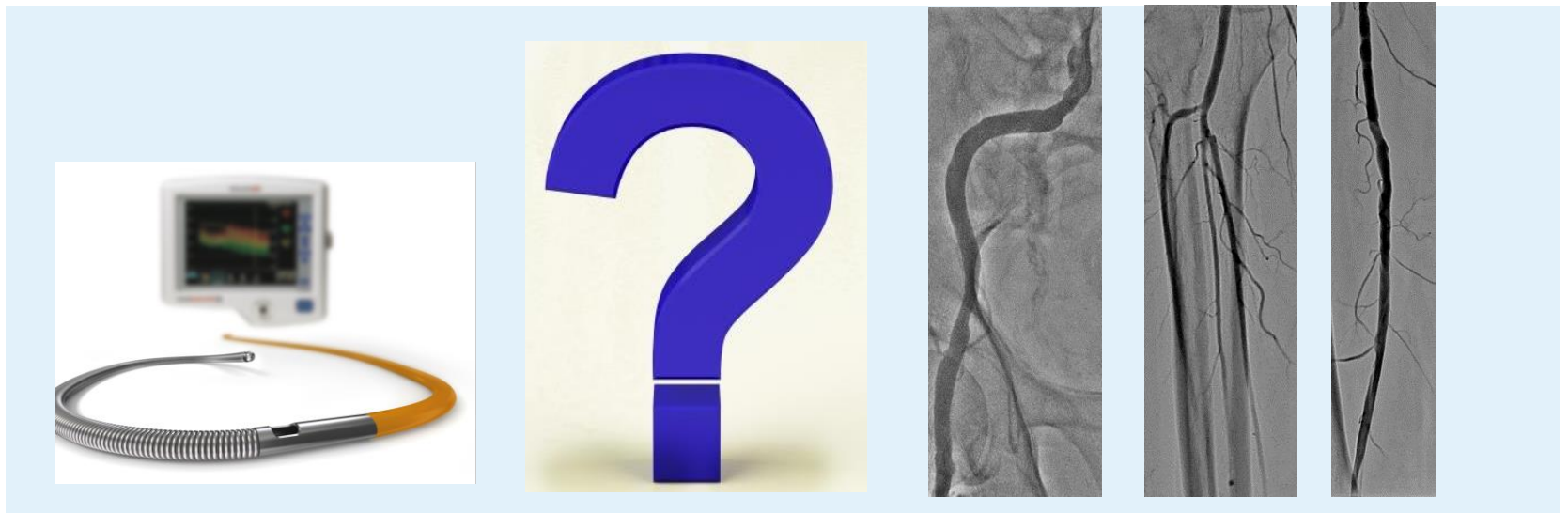
### Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention

Pim A.L. Tonino, M.D., Bernard De Bruyne, M.D., Ph.D., Nico H.J. Pijls, M.D., Ph.D.,  
Uwe Siebert, M.D., M.P.H., Sc.D., Fumiaki Ikeno, M.D., Marcel van 't Veer, M.Sc., Volker Klauss, M.D., Ph.D.,  
Ganesh Manoharan, M.D., Thomas Engström, M.D., Ph.D., Keith G. Oldroyd, M.D., Peter N. Ver Lee, M.D.,  
Philip A. MacCarthy, M.D., Ph.D., and William F. Fearon, M.D., for the FAME Study Investigators\*



# Introduction

However... in **PAD**,  
the validity of PW measurement is **unclear**.



# Case

- **63**-yrs-old **man**
  - **Hypertension**
  - **Diabetes** type II
  - **Ex-Smoking**
  - **Intermittent Claudication** (Rutherford class **2**)  
in his right limb.

# Non-invasive examination

Baseline

## ABI at rest

0.99

右上腕血圧

最高 138

平均 109

最低 77

脈圧 61

右足首血圧

最高 137

平均 97

最低 72

脈圧 65

ABI 0.99



## PSVR on duplex

3.4



# Exercise ABI test

Baseline

0.75 post

0.95 pre

=

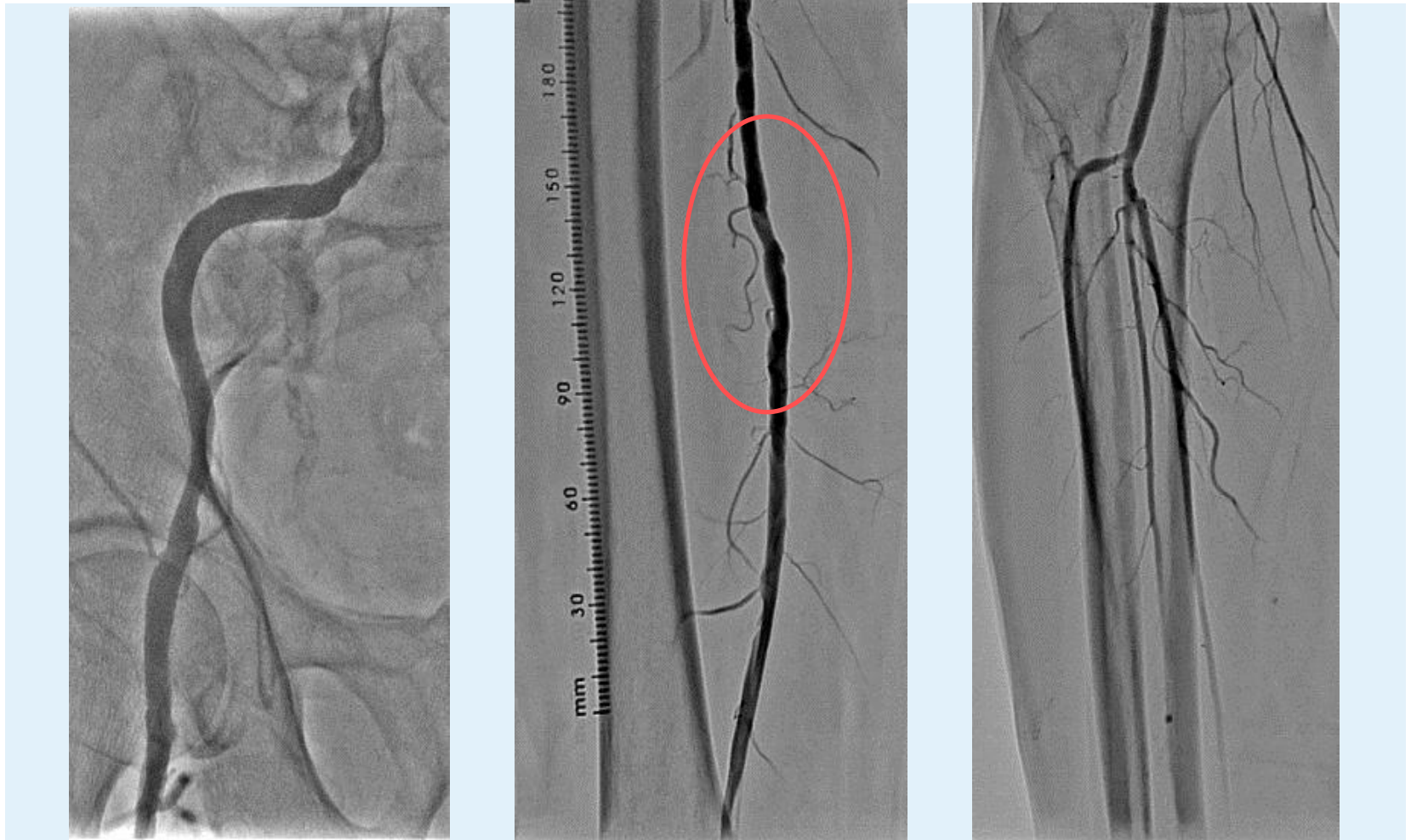
0.77

## ● protocol

- Slope 12 %, Speed 2.4 km/h
- Distance of claudication **72.6** m, Time **110** sec
- Max distance of walking **139.6** m, Time **211** sec

# Angiograph

Baseline





# PW measurement

Pre EVT

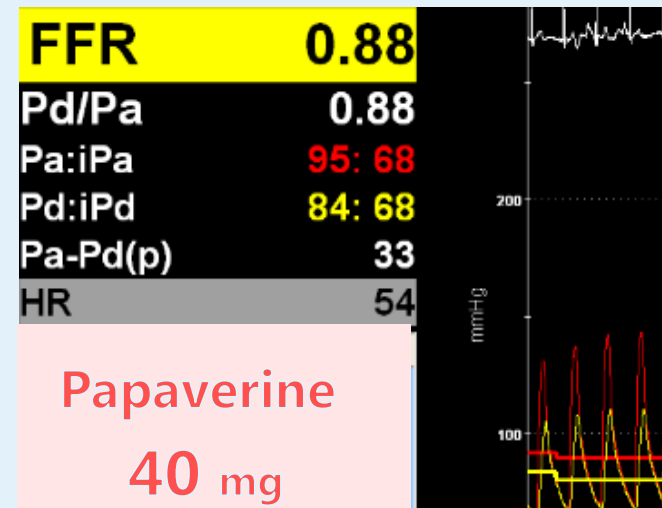
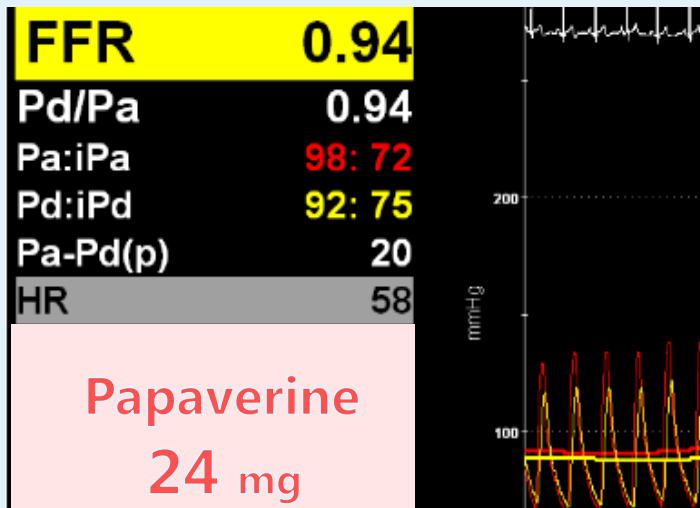
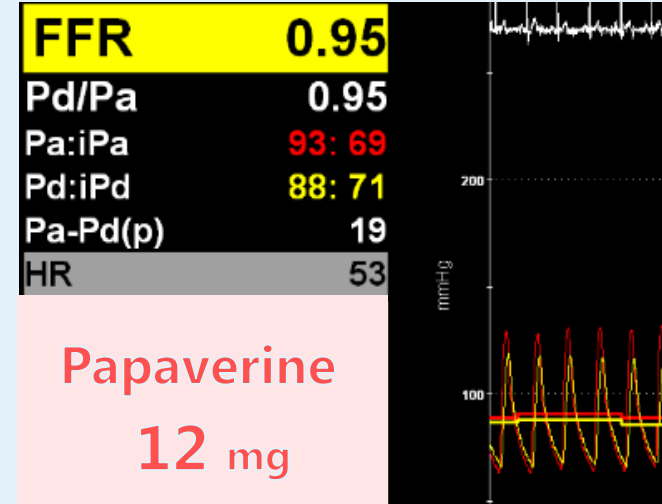
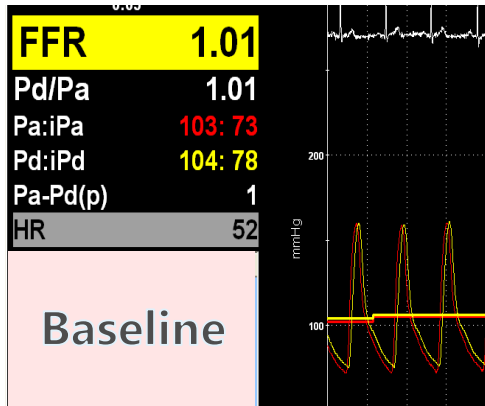


## ● *System*

- **Contralateral femoral approach**
- **G.S 6Fr Destination 50 cm**
- **G.W Pressure Wire 300 cm**

# Vasodilation

Pre EVT



# EVT

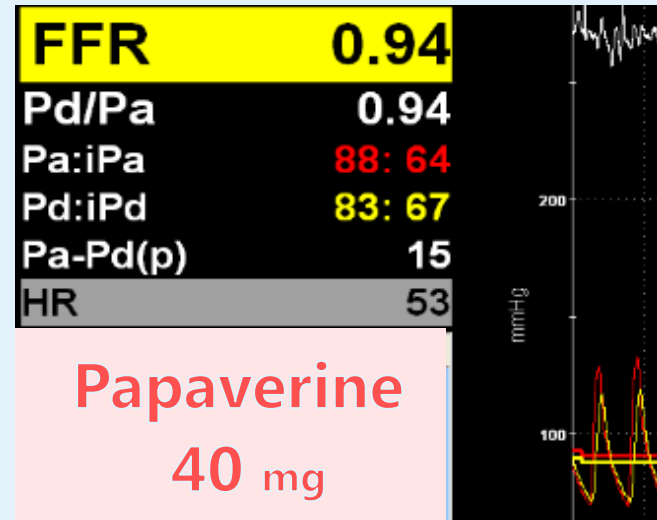
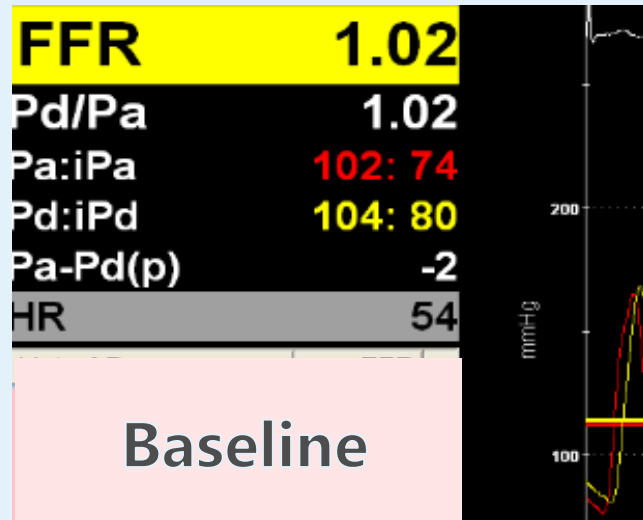


## ● Procedure

- **G.W Pressure Wire 300** cm
- **Pre-dilation Shiden 6/40** mm
- **Zilver PTx 7/60** mm
- **Post-dilatation Shiden 6/40** mm

# PW measurement

Post EVT



# Non-invasive examination

Post EVT

## ABI at rest

1.08

右上腕血圧  
最高 130  
平均 94  
最低 69  
脈圧 61

右足首血圧  
最高 142  
平均 97  
最低 63  
脈圧 79

ABI 1.08

b a PWV  
1478



## PSVR on duplex

1.2



# Exercise ABI test

Post EVT

$$0.99 \text{ Post EX} / 1.08 \text{ Pre EX} = 0.91$$

## ● *protocol*

- Slope 12 %, Speed 2.4 km/h
- No claudication
- Max distance of walking **200** m, Time **300** sec

# Summary

	<b>ABI at Rest</b>	<b>ABI at Ex</b>	<b>PSVR on Duplex</b>	<b>P d/a at Rest on PW</b>	<b>pFFR at HR on PW</b>
Baseline	0.99	0.77	3.4	1.01	0.88
Post EVT	1.08	0.91	1.2	1.02	0.94

\* Defined as "Peripheral FFR" induced by injection of *Papaverine* 40 mg

# Summary

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# Summary

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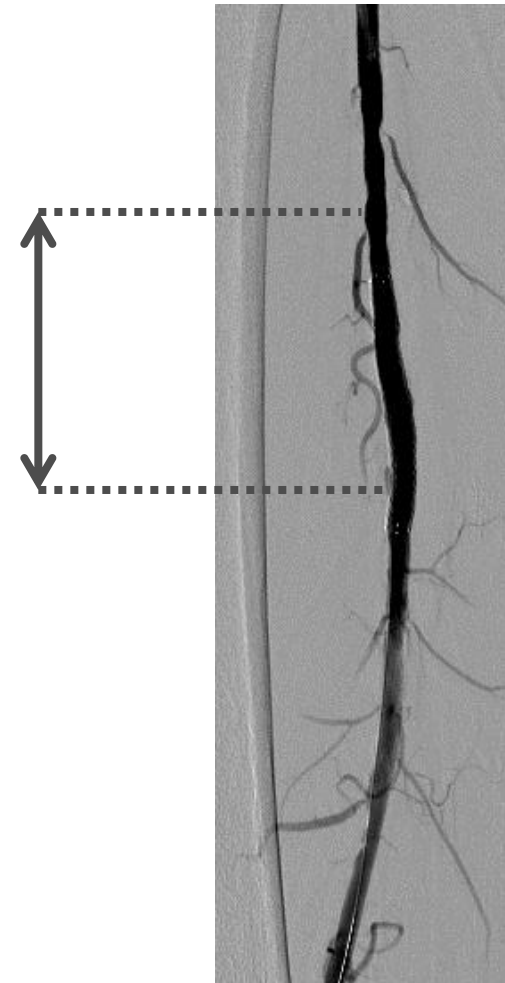
\* Defined as "Peripheral FFR" induced by injection of Papaverine 40 mg

# Discussion

Significant pull-back PG was...

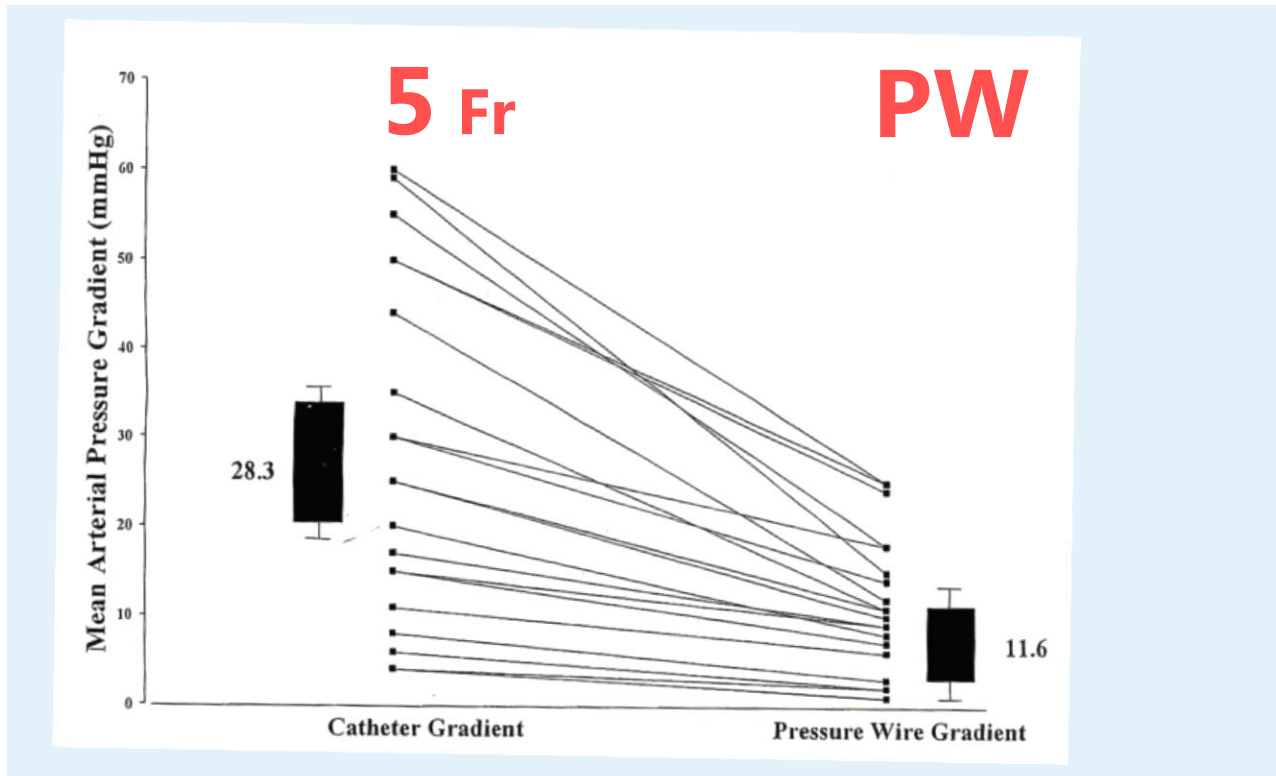
**10 mmHg**

in 5 Fr catheter



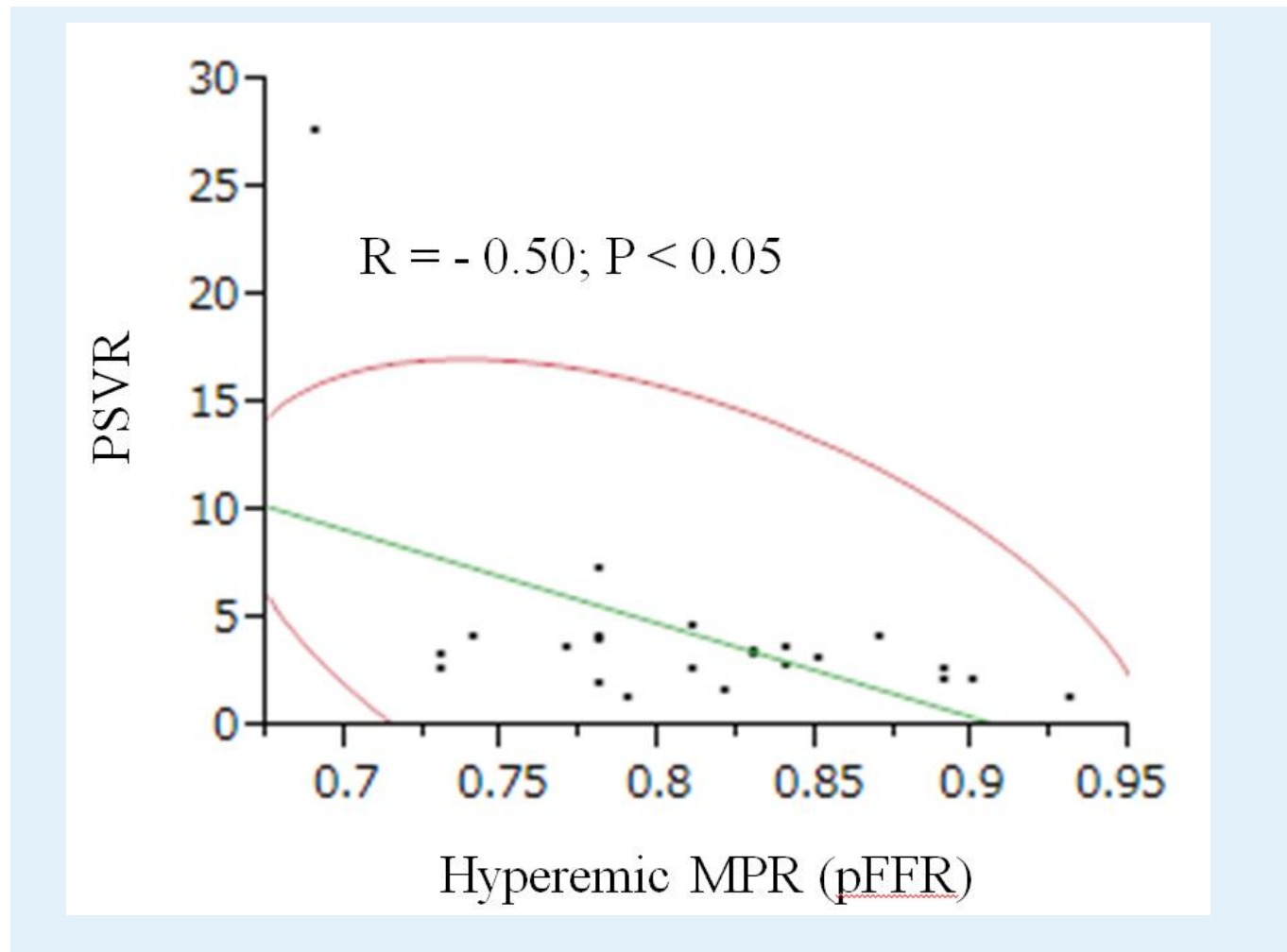
*Tetteroo E, Van der Graaf Y, Bosch JL, van Engelen AD, Hunink MG, et al. Randomised comparison of primary stent placement versus primary angioplasty followed by selective stent placement in patients with iliac-artery occlusive disease. Dutch Iliac Stent Trial Study Group. Lancet 1998;351:1153-1159.*

# Discussion



Lawrence A, Garcia LA, Carrozza JP Jr. Physiologic evaluation of translesion pressure gradients in peripheral arteries: Comparison of pressure wire and catheter-derived measurements. *J Interv Cardiol* 2007;20:63-65.

# Discussion



# Discussion

## Problems to solve.....

### ● Vasodilation

- Dose ?  
*weight / muscle amount*
- Type ?  
*adenosis / papaverine etc*
- Route ?  
*iv / ic*

### ● lesions

- Diffuse ?
- Calcification ?
- Location ?  
*AI / FP / BK*

# Conclusions

**Peripheral FFR** measured by pressure wire **is reliable** for prediction of hemodynamic significance in angiographic intermediate stenosis.