Paris PVT meeting
Nov. 29th 2022 – Session 1 – Non cirrhotic PVT

PVT and underlying liver disease

Non invasive tests versus liver biopsy

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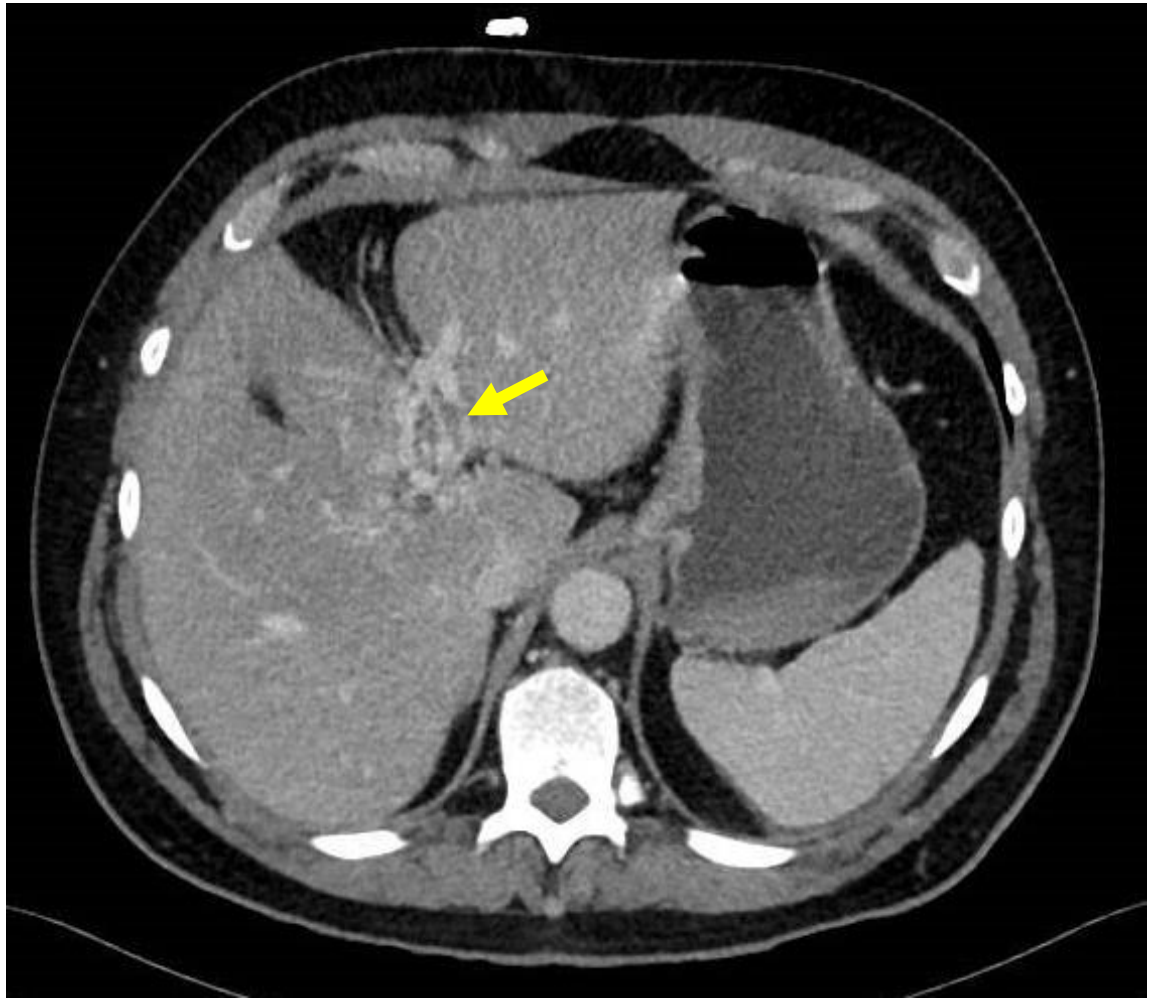
60 y.o male, mild arterial hypertension, 1m80, 90 kg (BMI 28 kg/m^2). Intense abdominal pain for 3 days



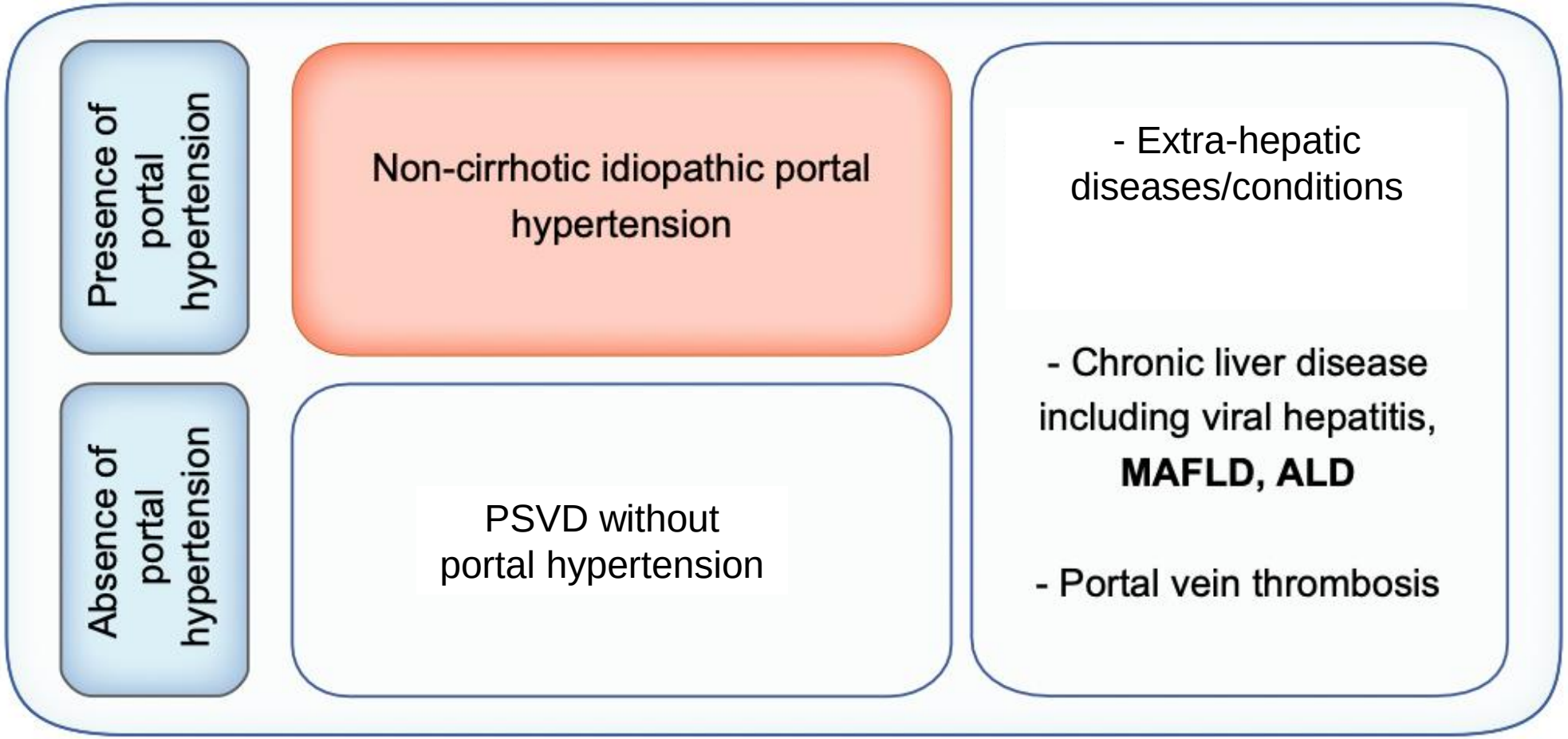
What is the underlying liver disease?

- Normal liver (or NAFLD) = **EHPVO**
- **Cirrhosis**
- **PSVD** with PVT

Should we perform a liver biopsy to make the diagnosis?

EHPVO: extrahepatic portal vein obstruction
PSVD: Portosinusoïdal vascular liver disorder

Portosinusoïdal vascular disorder (PSVD)



De Gottardi et al. J Hepatol. 2022

Epidemiology of PVT according to liver disease

	Compensated cirrhosis	**Normal liver / NAFL**	**PSVD**
PVT incidence	≈ 10% (5 years)	Rare (may be more frequent in NAFLD)	≈ 30% (5 years)
Prevalence of the condition	Common	Very frequent	Rare

Nery Hepatology 2015, Abdel-razik Frontiers in Medicine 2022, De Gottardi J Hepatol 2022

PVT and underlying liver disease

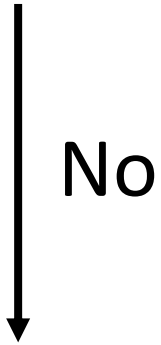
What is the clinical impact?

	Cirrhosis	**EHPVO**	**PSVD**
Screening for varices	Non invasive	Upper gastrointestinal endoscopy	
HCC screening	Yes	No	
Pro-thombotic factor screening	No	Yes	
Long-term anticoagulation	Based on « LT status »	Yes (pro-thombotic factor)	

De Franchis, Baveno VII J Hepatol. 2022, De Gottardi Lancet Gastroenterol Hepatol 2019, Plessier ILC 2021

Agenda

1. Does the patient have cirrhosis?



2. Does the patient have EHPVO or PSVD?

1. Does the patient have cirrhosis?

1. CT scan (or MRI)
2. Non invasive methods for fibrosis
   - Liver stiffness measurement
   - (blood tests)

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CT scan: cirrhosis *vs.* EHPVO
No comparative studies

	Cirrhosis	EHPVO
Thrombosis	Non occlusive > occlusive Cavernoma rare	Cavernoma

Vilgrain Radiology 2006, Tublin Dig Dis Sc 2008, Jha AJR 2018, El Naggar Liver transplant 2018, Gupta Br J Radiol 2019

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Atrophy	Right liver	Peripheral

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Biliary abnorm.	absent	Present (insconstant)

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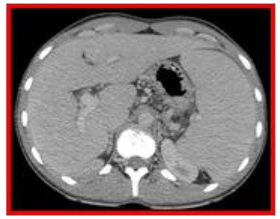
CT scan: cirrhosis versus PSVD (with or w/o PVT)

	Cirrhosis (n=426)	PSVD (n=198)
Nodular liver surface	85%	19%
Atrophy of segment IV	64%	26%
Hypertrophy of caudate lobe	85%	95%
Peripheral atrophy	23%	37%
Portal vein abnormalities	12%	50%

Glatard Radiology 2012; Kang Abdominal Radiology 2021, Lampichler, Eur Radiol 2022, Valainathan et al. Hepatology 2022

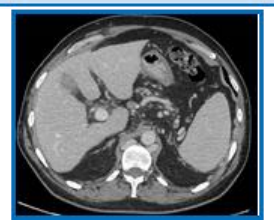
Computed tomography in PSVD



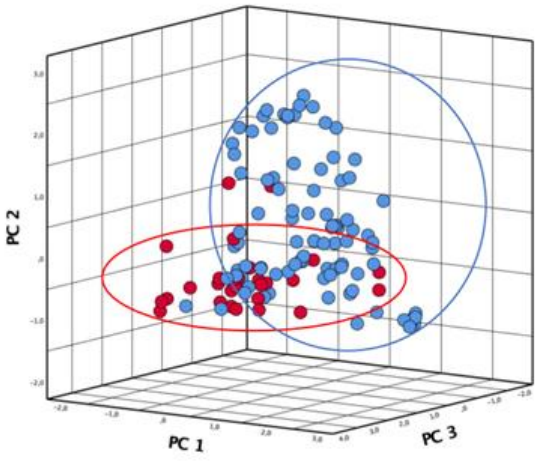
50 patients with PSVD

Matched on ascites

100 patients with cirrhosis



Different imaging pattern at CT scan



PSVD Cirrhosis

Liver surface nodularity < 2.5 and normal-size/enlarged segment IV

PPV for PSVD 73%

Liver surface nodularity ≥ 2.5 and segment IV atrophy

PPV for cirrhosis 88%

Valainathan et al. Hepatology 2022

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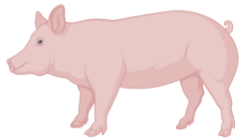
2. Non invasive methods for fibrosis
   - Liver stiffness measurement
   - (blood tests)

Impact of PVT on liver stiffness value



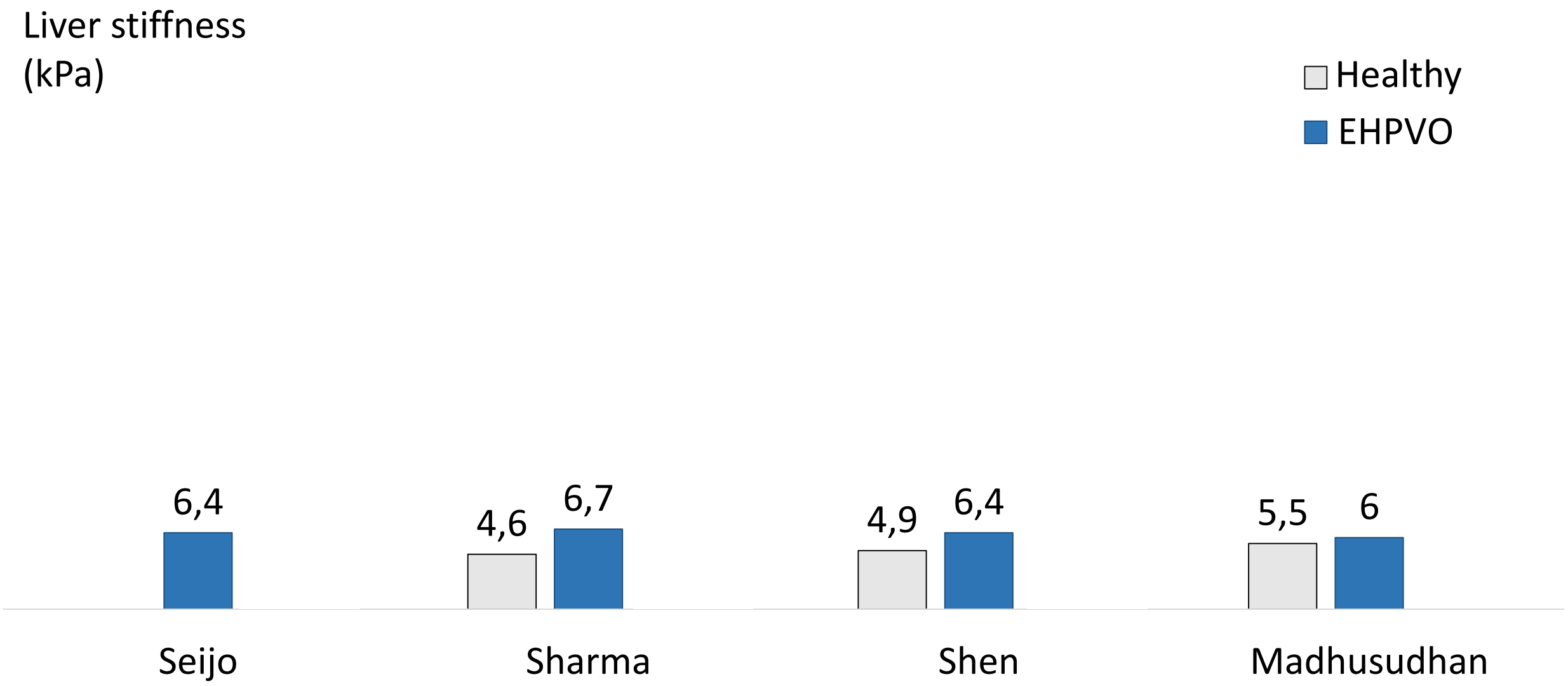
Magnetic resonance elastography

Portal vein occlusion	Intrahepatic venous blood flow	LSM
50%	↓ 30%	↓ 1 %
80%	↓ 51%	↓ 8 %
100%	↓ 83%	↓ 12 %

No / little impact of PV obstruction on liver stiffness

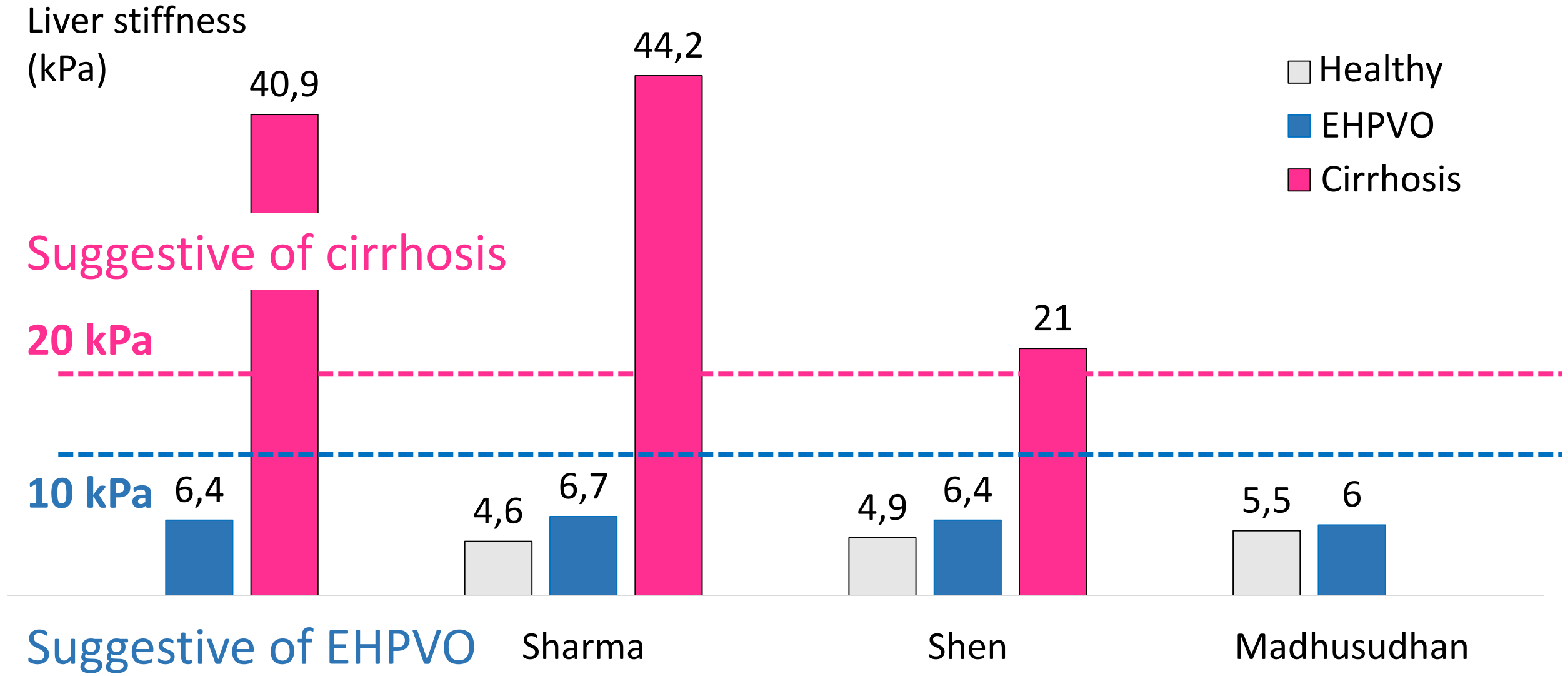
Chatelin NMR in Biomedicine 2022

Elastography: EHPVO vs healthy volunteers



Seijo Dig Liv Dis 2012, Sharma Radiology 2012, Shen J Clin Exp Ther Med 2021, Madhusudhan J Clin Exp Hepatol 2017

Elastography: EHPVO vs cirrhosis



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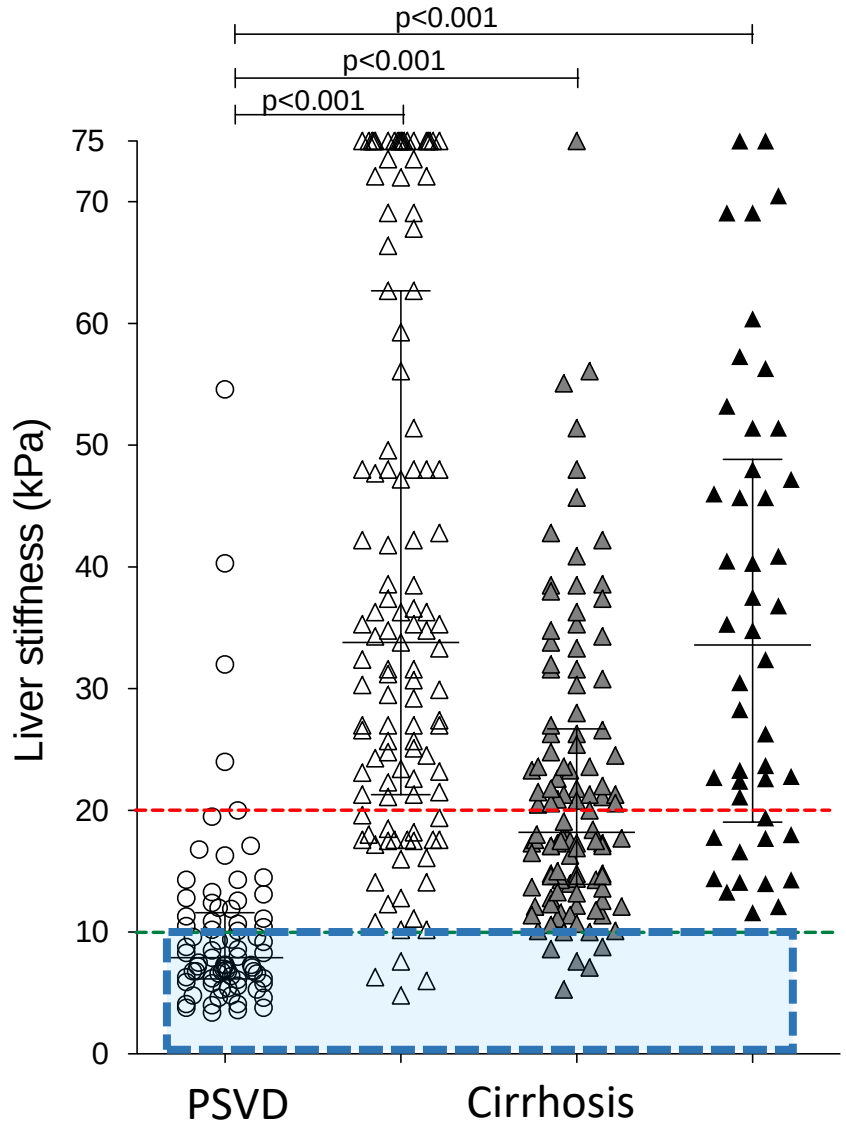
Transient elastography: PSVD (w/o PVT) vs. cirrhosis

Study	N	LSM (kPa)
Laharie	27*	7.9
Seijo	30	8.4
Sharma	20	6.8
Elkrief	155	7.9

* Only 55% with portal hypertension



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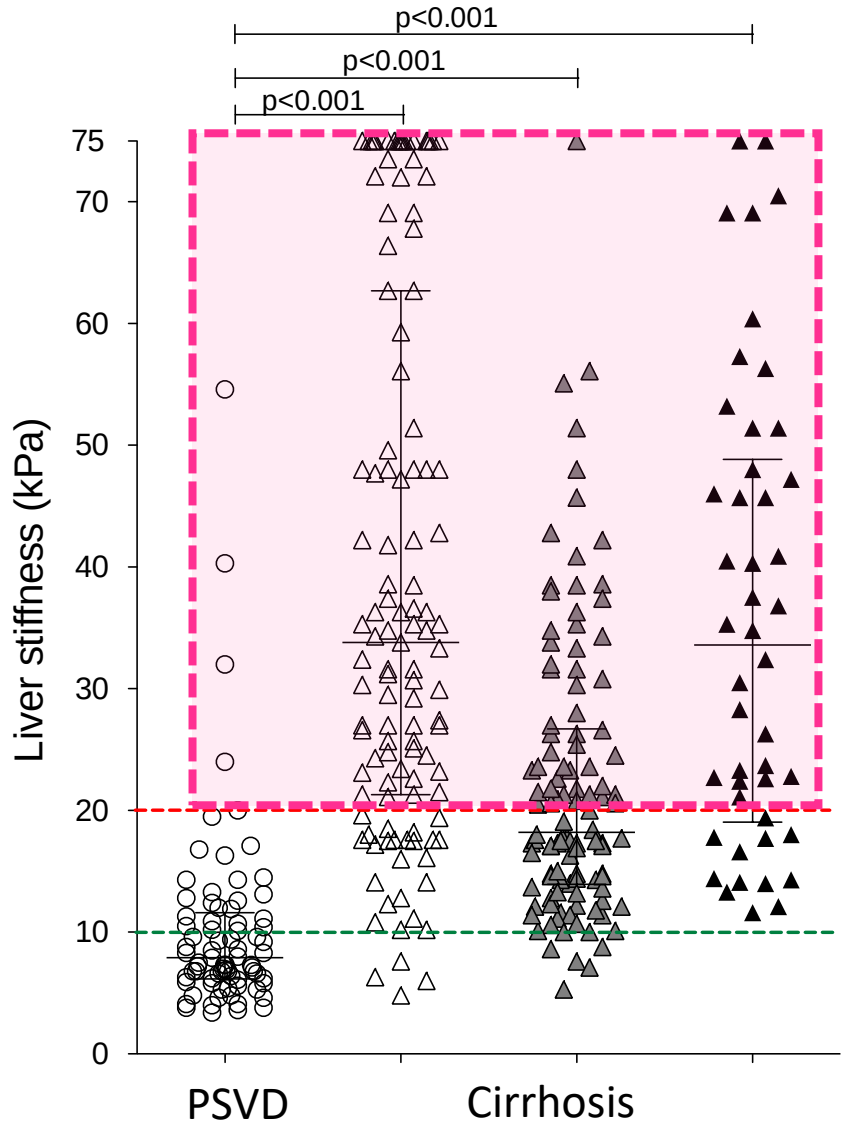

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Blood tests

- 30 patients with PSVD

- Mean FibroTest : 0.48 (range 0.14-0.95)

- 44% with FibroTest > 0.48

=> Non accurate to distinguish NRH from cirrhosis/cACLD

- Patients with PVT : no data

Laharie Eur J Gastroenterol Hepatol 2010 , De Franchis Baveno VII J Hepatol 2022

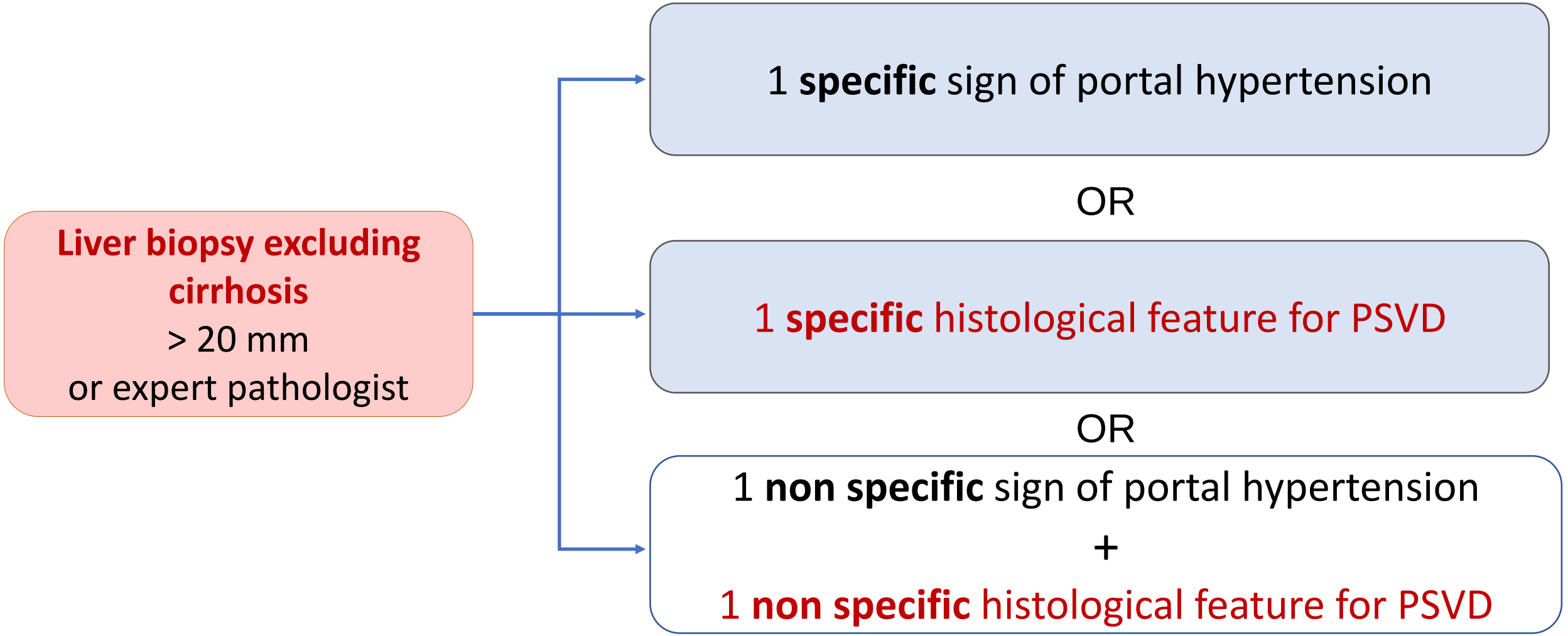
Diagnostic strategy

1. Does the patient have cirrhosis?

No cirrhosis

2. Does the patient have normal liver or PSVD?

PSVD: diagnostic criteria



De Gottardi Lancet Gastroenterol Hepatol 2019, Baveno VII J. Hepatol 2022, De Gottardi et al. J Hepatol 2022

EHPVO or PSVD?

What is the clinical impact?

	EHPVO	PSVD
Screening for esophageal varices	Upper gastrointestinal endoscopy	
HCC screening	No	
Pro-thombotic factor screening	Yes	
Long-term anticoagulation	Yes (pro-thombotic factor)	

De Franchis, Baveno VII J Hepatol. 2022, De Gottardi Lancet Gastroenterol Hepatol 2019, Plessier ILC 2021

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What is the clinical impact?

	EHPVO	PSVD
Screening for esophageal varices	Upper gastrointestinal endoscopy	
HCC screening	No	
Pro-thombotic factor screening	Yes	
Long-term anticoagulation	Yes (pro-thombotic factor)	
Recanalization	Stent in the PV	TIPSS

De Franchis, Baveno VII J Hepatol. 2022, De Gottardi Lancet Gastroenterol Hepatol 2019, Plessier ILC 2021

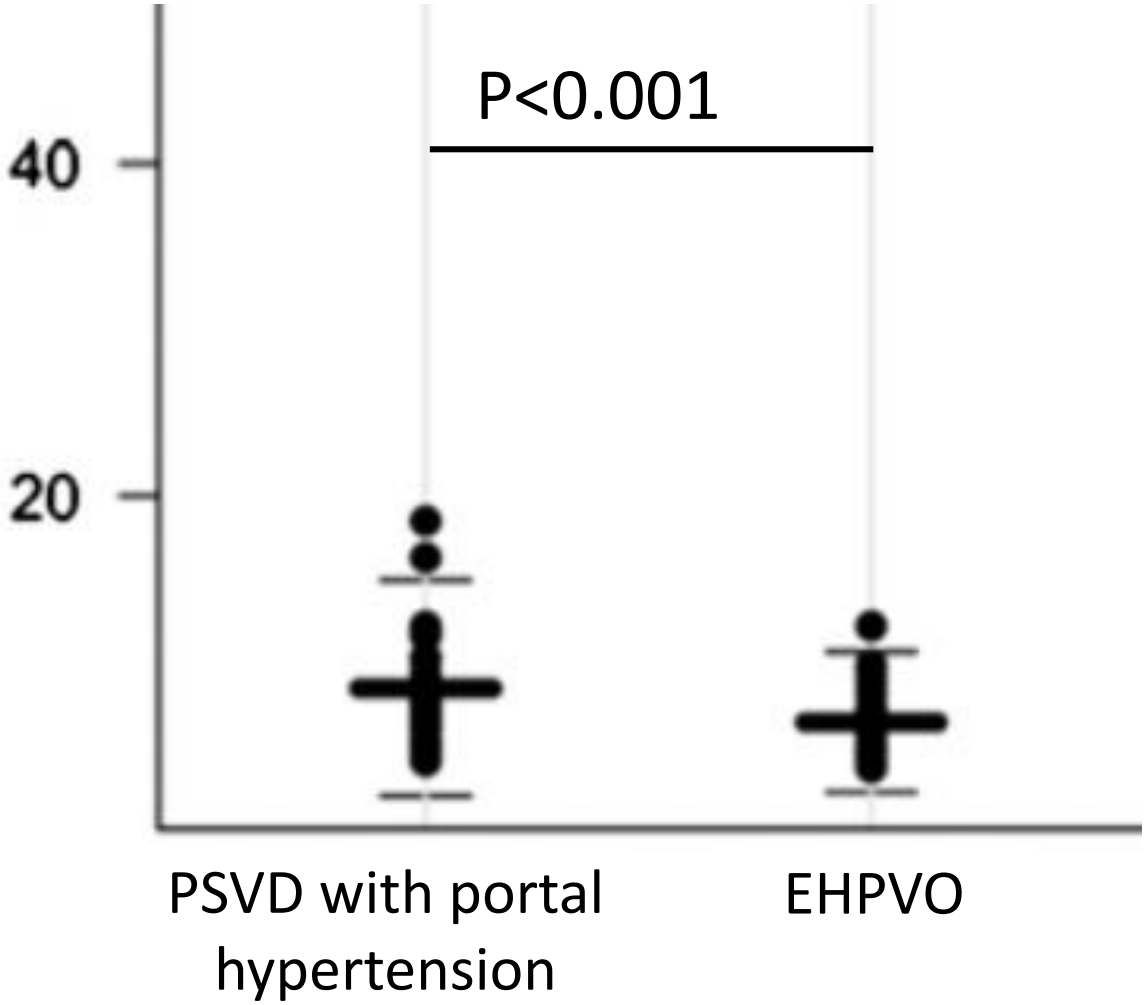
EHPVO vs. PSVD : CT scan

	EHPVO	**PSVD**
Nodular liver surface	NO	NO
Atrophy of segment IV	NO	NO
Hypertrophy of caudate lobe	YES	YES
Cavernoma	YES	+/-
Portal biliopathy	YES	NO

No specific feature

Nicoara-Farcau WJG 2020

EHPVO vs. PSVD : Elastography



Not discriminant

Seijo Dig Liver Dis 2012

2. Does the patient have normal liver or PSVD?

- Impossible to discriminate PSVD with PVT from EHPVO using non invasive tests
- Will liver biopsy be more helpful?

When to perform a liver biopsy in patients with PVT?

≥ 1 cause for PVT

+

Smooth liver surface AND
Segment IV hypertrophy
AND
Liver stiffness < 10 kPa

Low probability of cirrhosis

≥ 1 cause for cirrhosis

+

Nodular liver surface AND
segment IV atrophy
OR
Liver stiffness > 20 kPa

High probability of cirrhosis

No → Liver biopsy

No liver biopsy

Impact on clinical decision
Portal vein stent vs. TIPSS

Yes → Liver biopsy