

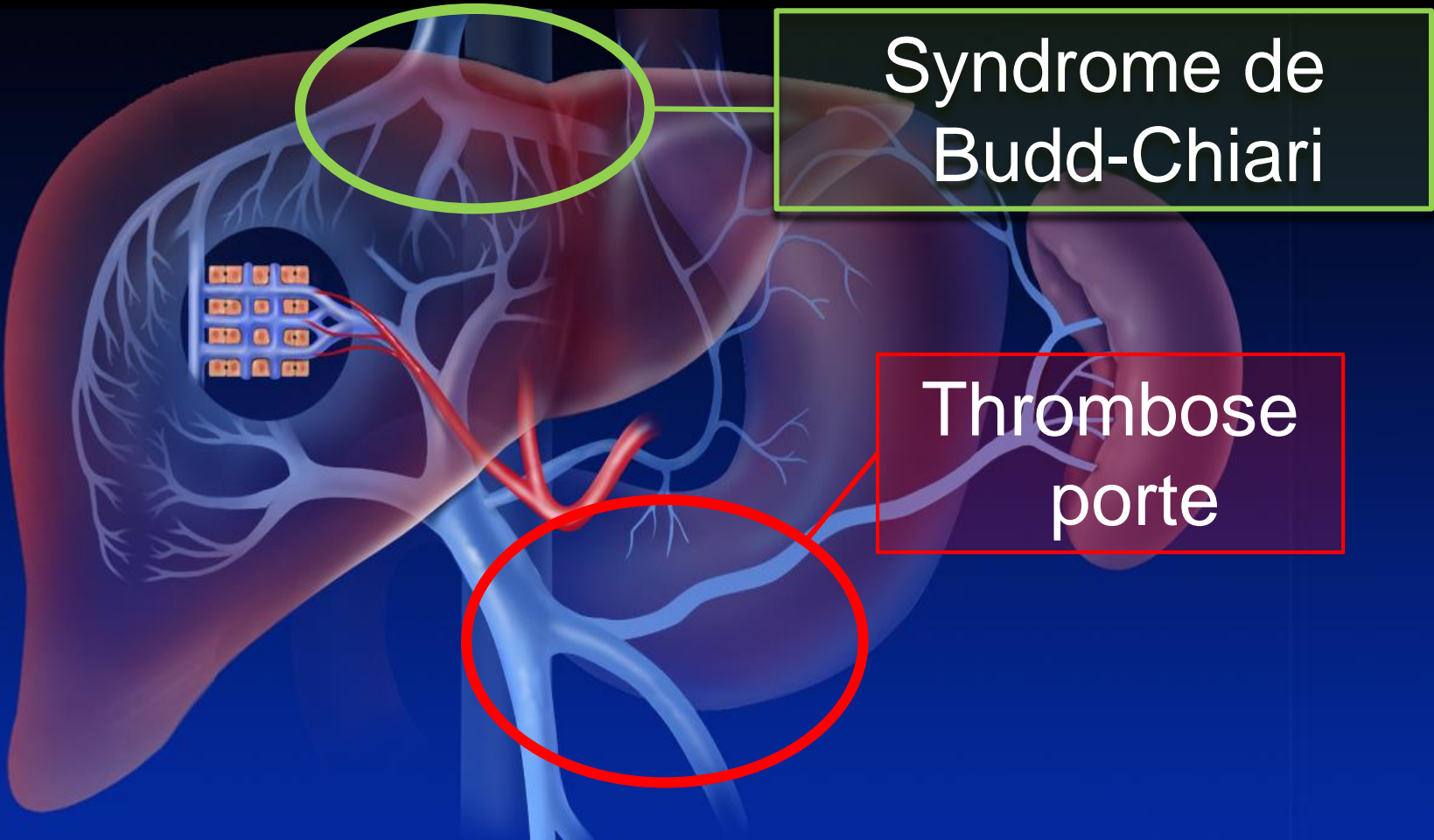


# Thromboses veineuses digestives

Pierre-Emmanuel RAUTOU

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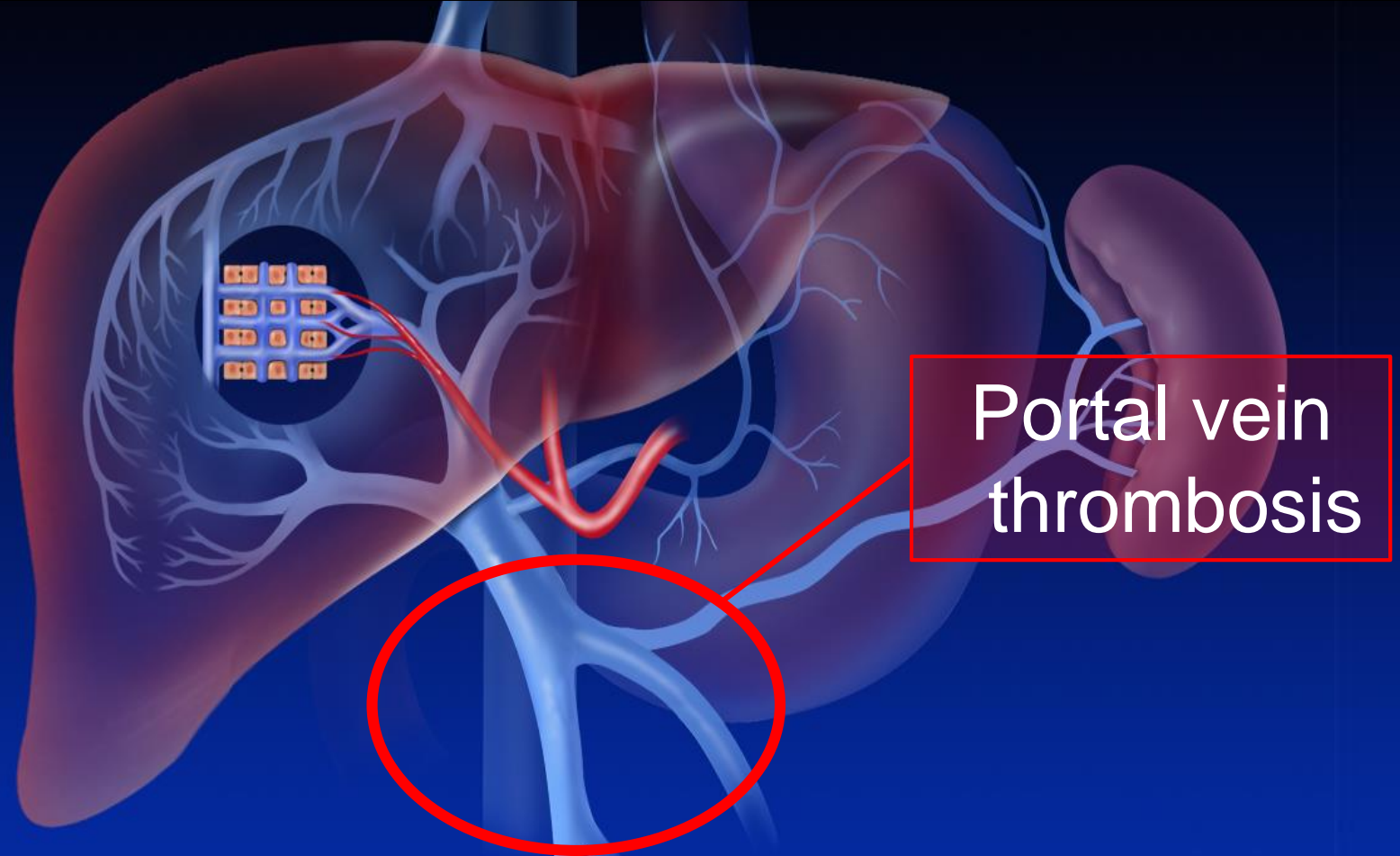
# Maladies vasculaires du foie



Syndrome de  
Budd-Chiari

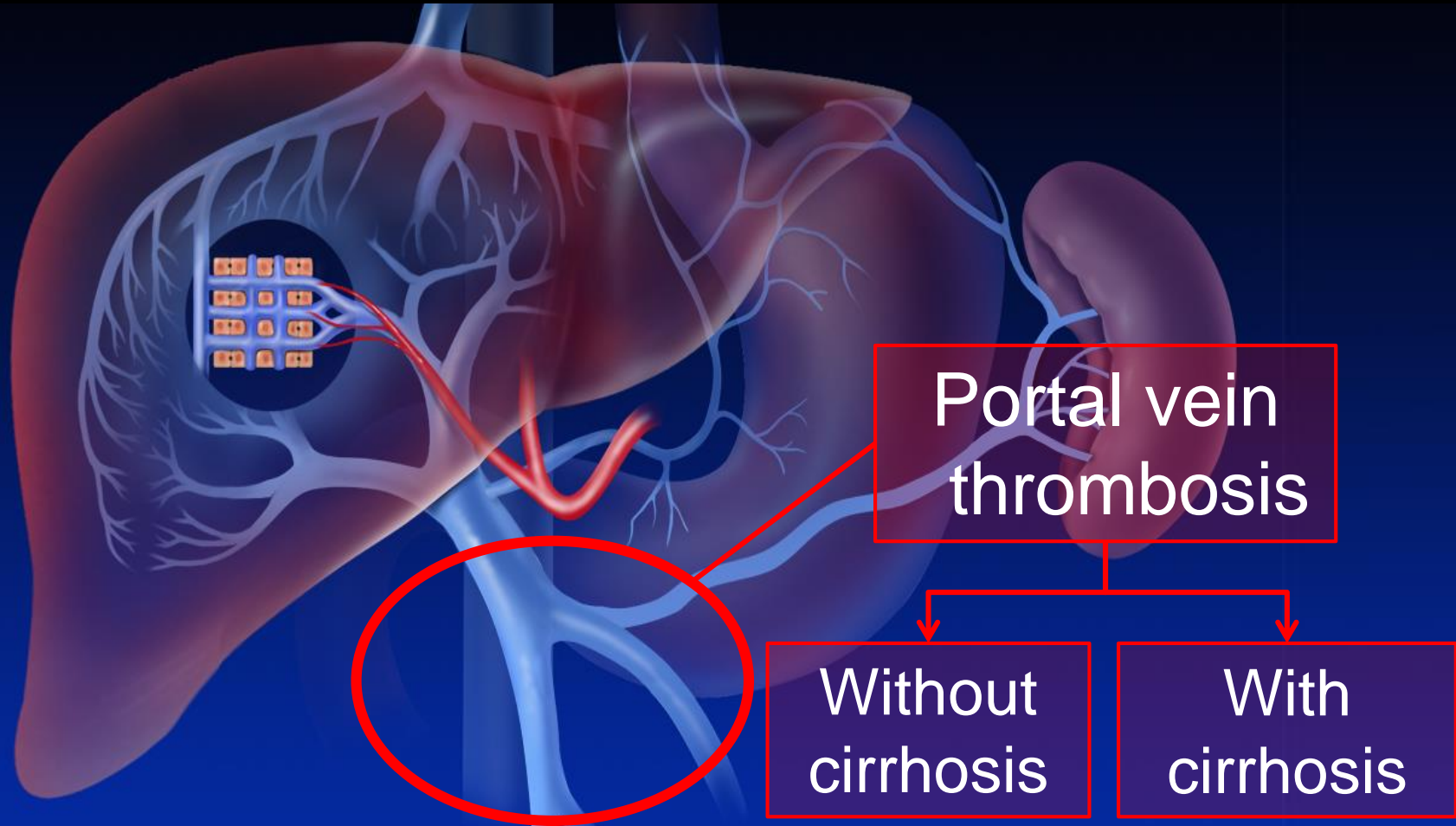
Thrombose  
porte

# Treatment of portal vein thrombosis





Portal vein thrombosis

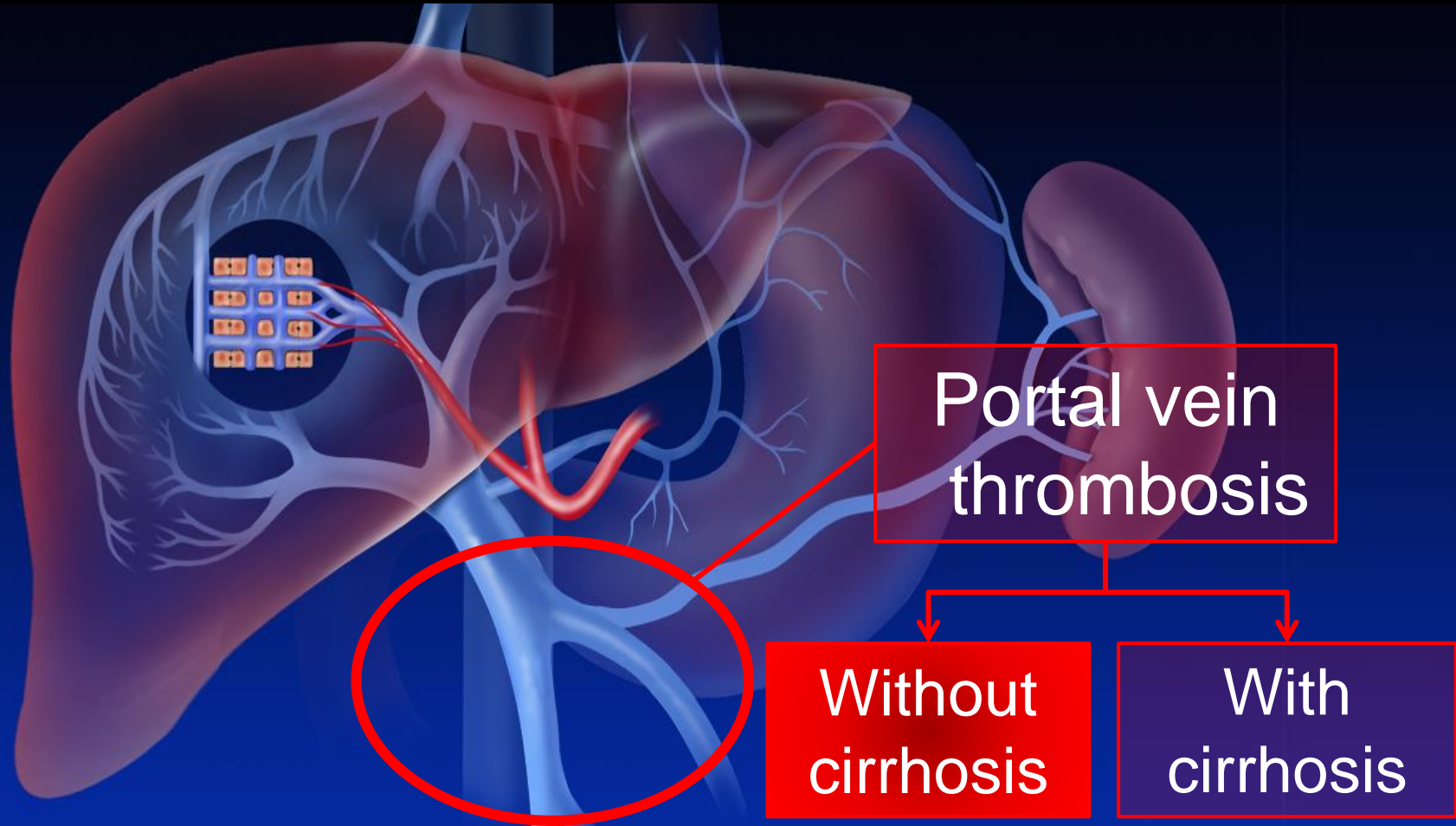
# Treatment of portal vein thrombosis



# When to perform a liver biopsy in patients with PVT?

	Normal liver	Cirrhosis
Cause for cirrhosis	No	Yes
Risk factor for PVT/PSVD	Local or systemic thrombosis factor	No
CT-scan	Smooth surface $\geq$ normal seg <sup>nt</sup> . IV	Nodular surface Seg <sup>nt</sup> . IV atrophy
Liver stiffness	$< 10$ kPa ( $\approx 5$ kPa)	$> 20$ kPa
	 No liver biopsy	 No liver biopsy

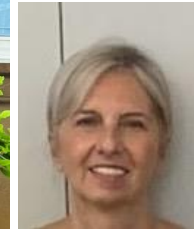
# Treatment of portal vein thrombosis



# EASL CPG panel



Valérie Mc Lin  
Virginia Hernandez-Gea



Dhiraj Tripathi  
Pierre-E. Rautou

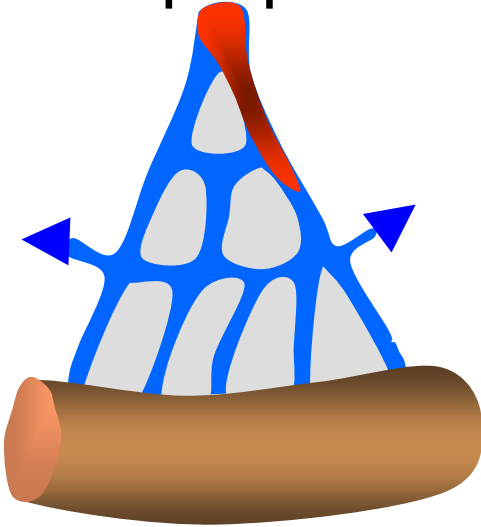


Lucile Moga  
Sarwa Darwish-Murad  
Juan-C. Garcia-Pagan

Walter Ageno  
Maria Guido  
Valérie Vilgrain

# Thrombose porte : symptômes

TVP aiguë non compliquée



Dleur abdo  
Inflam. System.



# Thrombose porte : diagnostic

- Echo-Doppler :
  - Absence de flux porte
  - Thrombus hyperéchogène
- **Scanner injecté 4 temps ++**
  - Diagnostic
  - Extension
  - Complication
  - Facteur local

# Thrombose porte récente

Sans injection



Temps portal

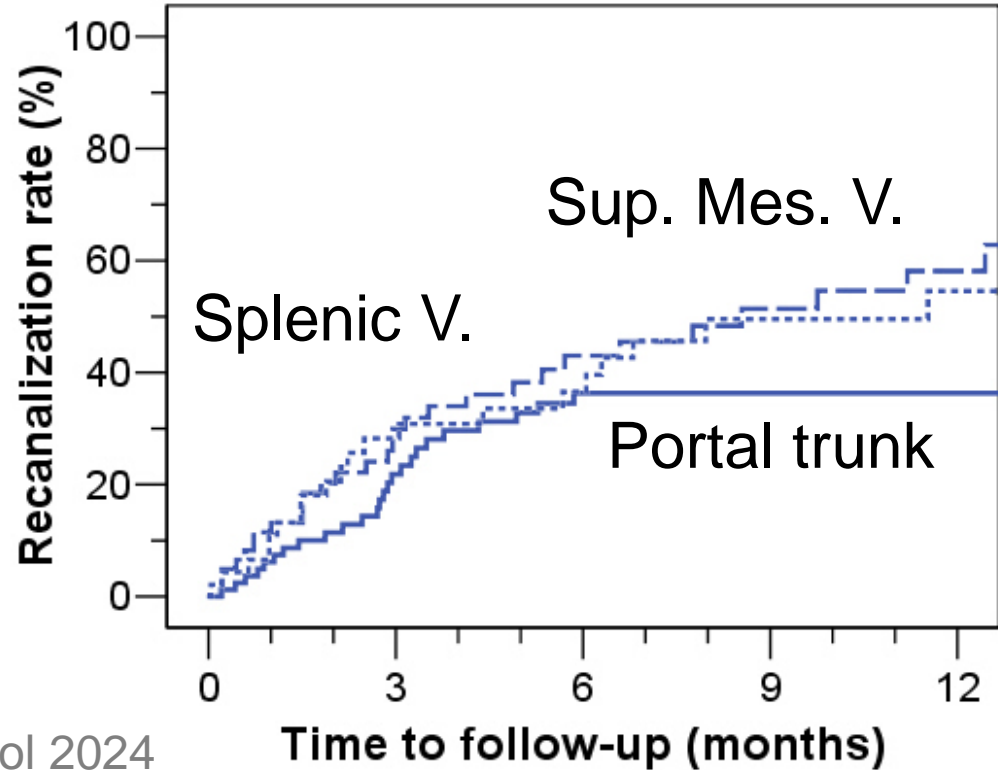


**Pas de collatérale**

Plessier, J Hepatol 2012  
Plessier, Hepatology 2009

# Recent PVT without cirrhosis: anticoagulation

- **Prevent:**
  - ✓ Extension
  - ✓ Mesenteric ischemia
- **Recanalization:**
  - ✓ 40% if early initiation
- **Duration**  $\geq 6$  mo



Plessier, *et al.* Hepatology 2009

Elkrief *et al.* Lancet Gastroenterol Hepatol 2024

# Facteurs de risques de thromboses veineuses digestives primitives

	<b>Turon 2014 (n=209)</b>	<b>Bureau 2016 (n=79)</b>	<b>Poisson 2017 (n=312)</b>
<b>Facteur local</b>	23%	16%	6%
<b>Facteur général</b>	<ul style="list-style-type: none"><li>• Chir. abdo</li><li>• Infection abdo.</li><li>• Trauma abdo.</li><li>• Pancréatite / MICI</li></ul>		
<b>Idiopathique</b>			

# Facteurs de risques de thromboses veineuses digestives primitives

	<b>Turon 2014 (n=209)</b>	<b>Bureau 2016 (n=79)</b>	<b>Poisson 2017 (n=312)</b>
Facteur local	23%	16%	6%
Facteur général	50%	34%	69%
Idiopathique	31%	49%	33%

# Facteurs de risque généraux

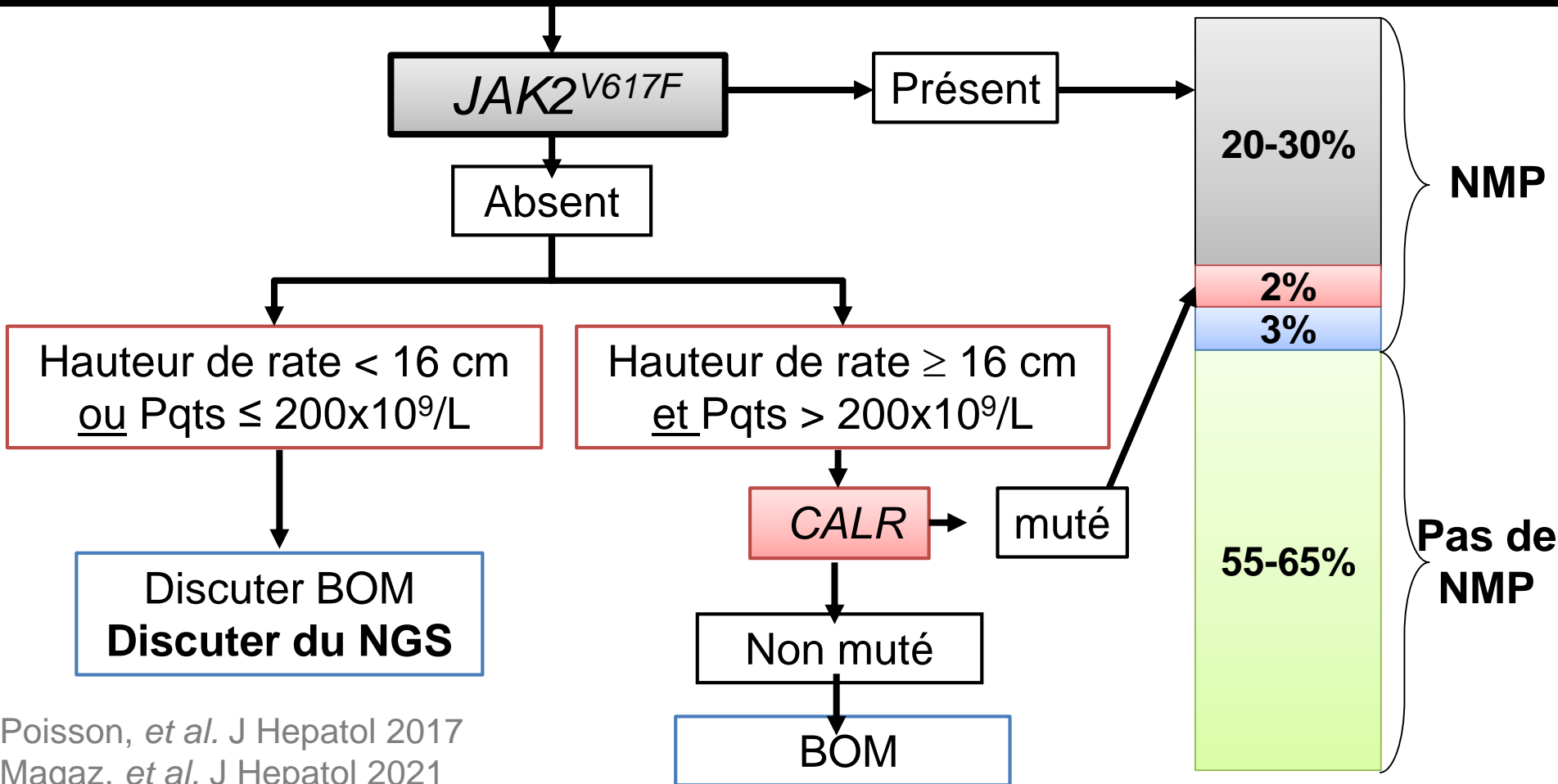
**Barcelone + Toulouse +  
Clichy (n=600)**

Syndrôme myéloprolifératif %	27%
Facteur II Leiden	4%
Facteur V Leiden	4%
Prot. C basse	5%
Prot. S basse	5%
SAPL %	7%
Autre (HPN, Behcet, CMV, ...) %	7%

# NMP et thromboses veineuses digestives

	Popu. générale	NMP
Budd-Chiari (/10 <sup>5</sup> )	0.1	1200
Thrombose porte primitive (/10 <sup>5</sup> )	4	6100

# Thromboses veineuses digestives primitives





# MPN treatment and BCS/PVT outcome

Budd-Chiari syndrome

(n=46)



Major events

(N=33 )

Portal vein thrombosis

(n=63)



Major events

(N=26 )

**Independent prognostic factor: absence of  
cytoreductive therapy after BCS/PVT diagnosis**

Major events: vascular events (new thrombosis, hemorrhage)  
or liver-related events (refractory ascites, hepato renal  
syndrome, encephalopathy and transplantation)

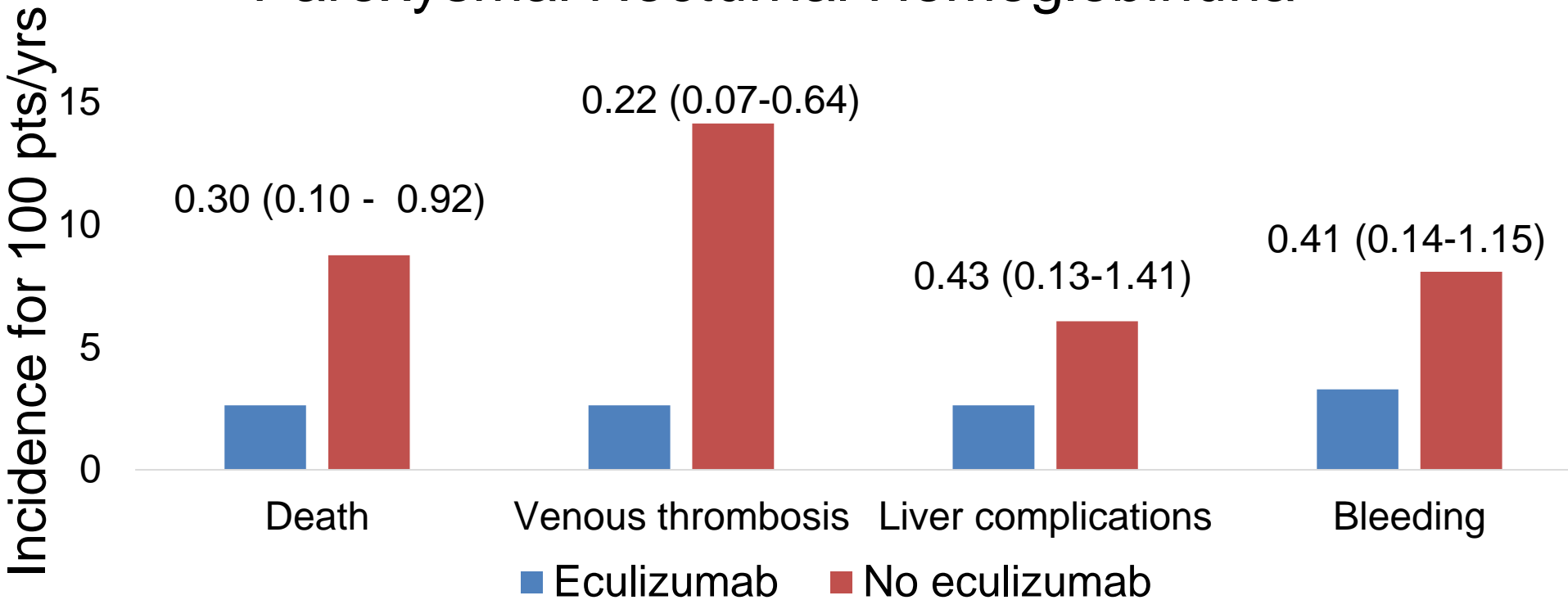
# Facteurs de risque généraux

**Barcelone + Toulouse +  
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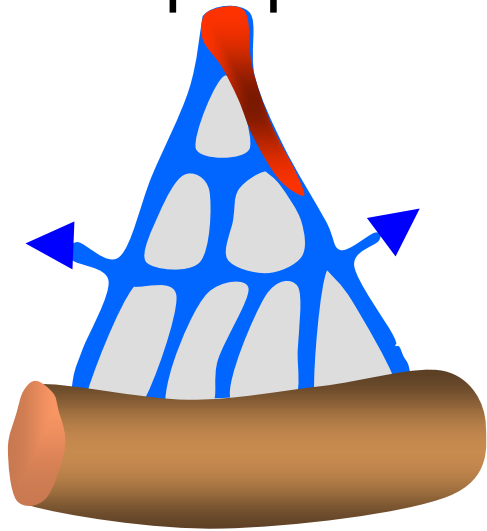
# Recent PVT without cirrhosis: treat risk factors

## Paroxysmal Nocturnal Hemoglobinuria



# Thrombose porte : symptômes

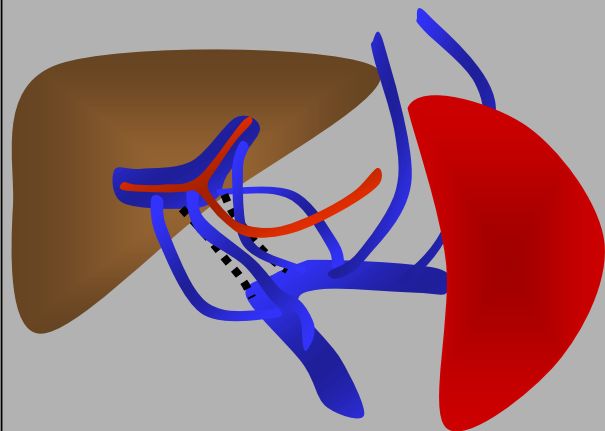
TVP aiguë non compliquée



Dleur abdo  
Inflam. System.



TVP chronique



Hémorragie  
Encéphalopathie  
Cholangiopathie

# Thrombose porte chronique



# Chronic PVT without cirrhosis: anticoagulation

Major and permanent prothrombotic risk factor?

No

“Anticoagulation can be considered to prevent thrombosis recurrence”

Extension of thrombosis and levels of Factor VIII or of D-dimers may help

Yes

“Long term anticoagulation recommended”

**DOAC** might be preferred over VKA to facilitate adherence and improve safety

Active cancer  
Myeloproliferative neoplasm  
Homozygous factor II or V mutation  
Antiphospholipid syndrome  
Paroxysmal nocturnal hemoglobinuria  
Behcet disease

# Rivaroxaban vs. no anticoagulation in chronic PVT

## Rivaroxaban:

Incidence 0/100 patient-yr

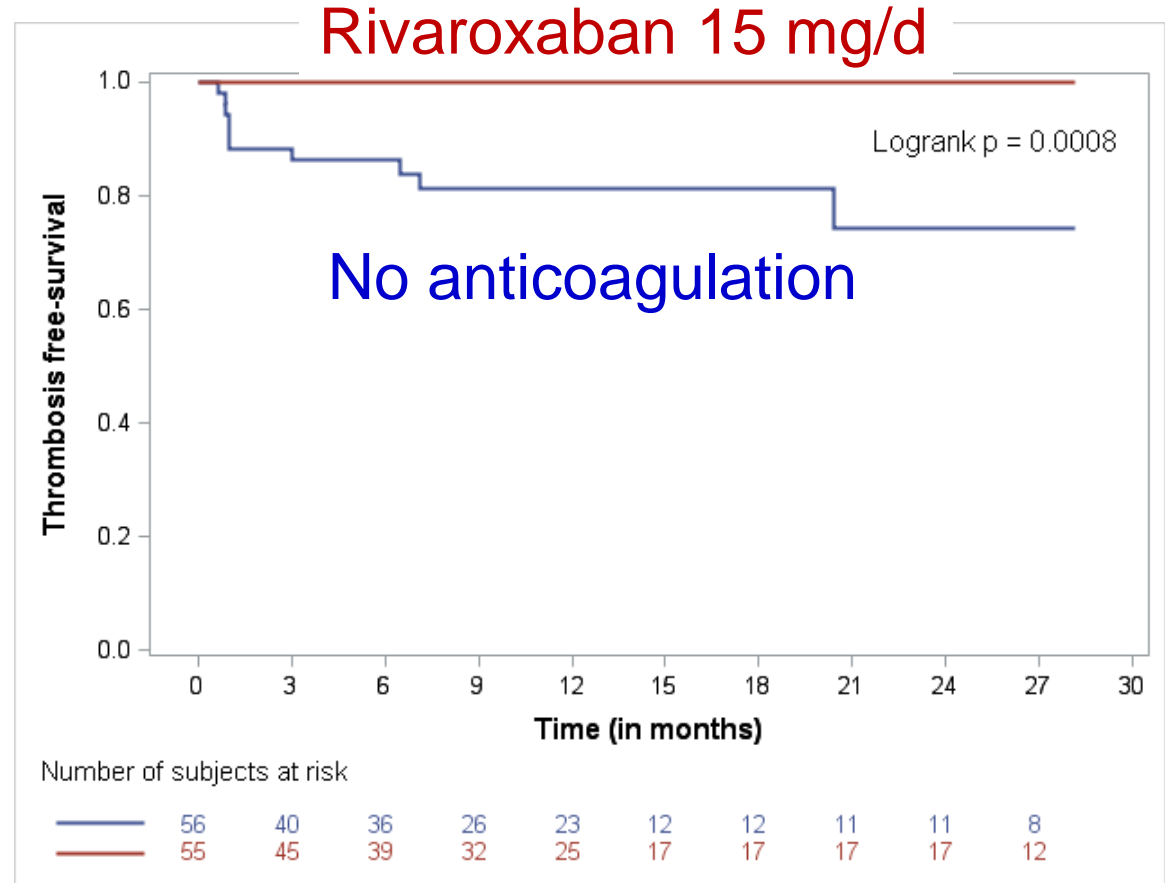
## No anticoagulation:

Incidence 20/100 patient-yr

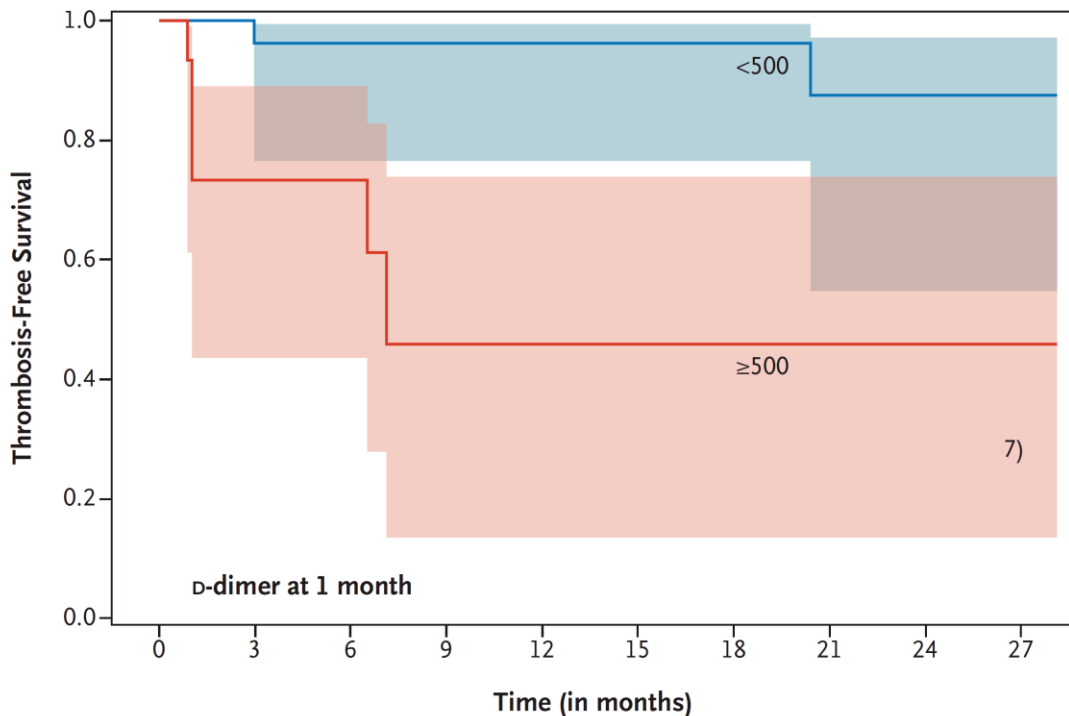
- Deep vein thrombosis: 3
- Pulmonary embolism: 3
- Splanchnic thrombosis 4

Median FU 11.8 months

**No safety concern**



# D-dimers at M1 without anticoagulants



D-dimer M1 < 500 ng/mL  
 → negative predictive value: 94%

D-dimer M1 ≥ 500 ng/mL  
 → positive predictive value: 38 %

D-Dimer > 500 ng/mL  
 associated with thrombosis  
 recurrence (HR=7.8 [1.5-41])

No. at Risk

<500

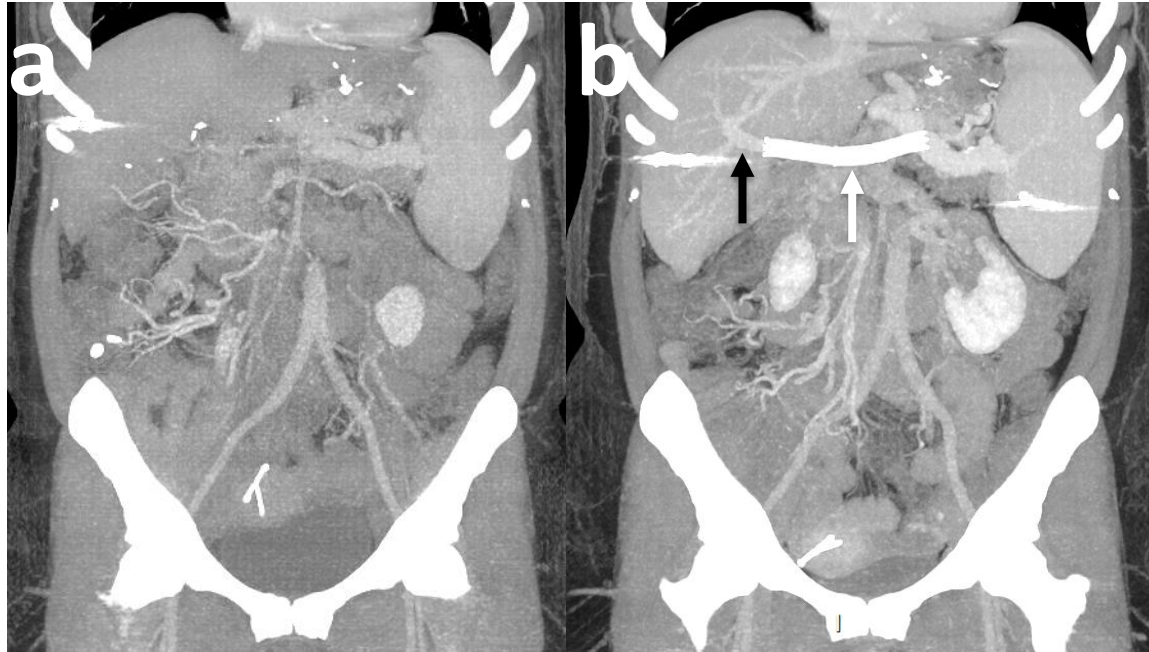
32 26 26 21 20 11 11 10 10 7

≥500

16 10 6 3 2 1 1 1 1 1



# Chronic PVT without cirrhosis: portal vein recanalization



- Success rate  $\approx$  80%
- ITT 2 yr- patency: 58%
- Symptom-free  $\approx$  2/3

# Chronic PVT without cirrhosis: Portal vein recanalization

**Refractory complications of portal hypertension or  
symptomatic portal cavernoma cholangiopathy**

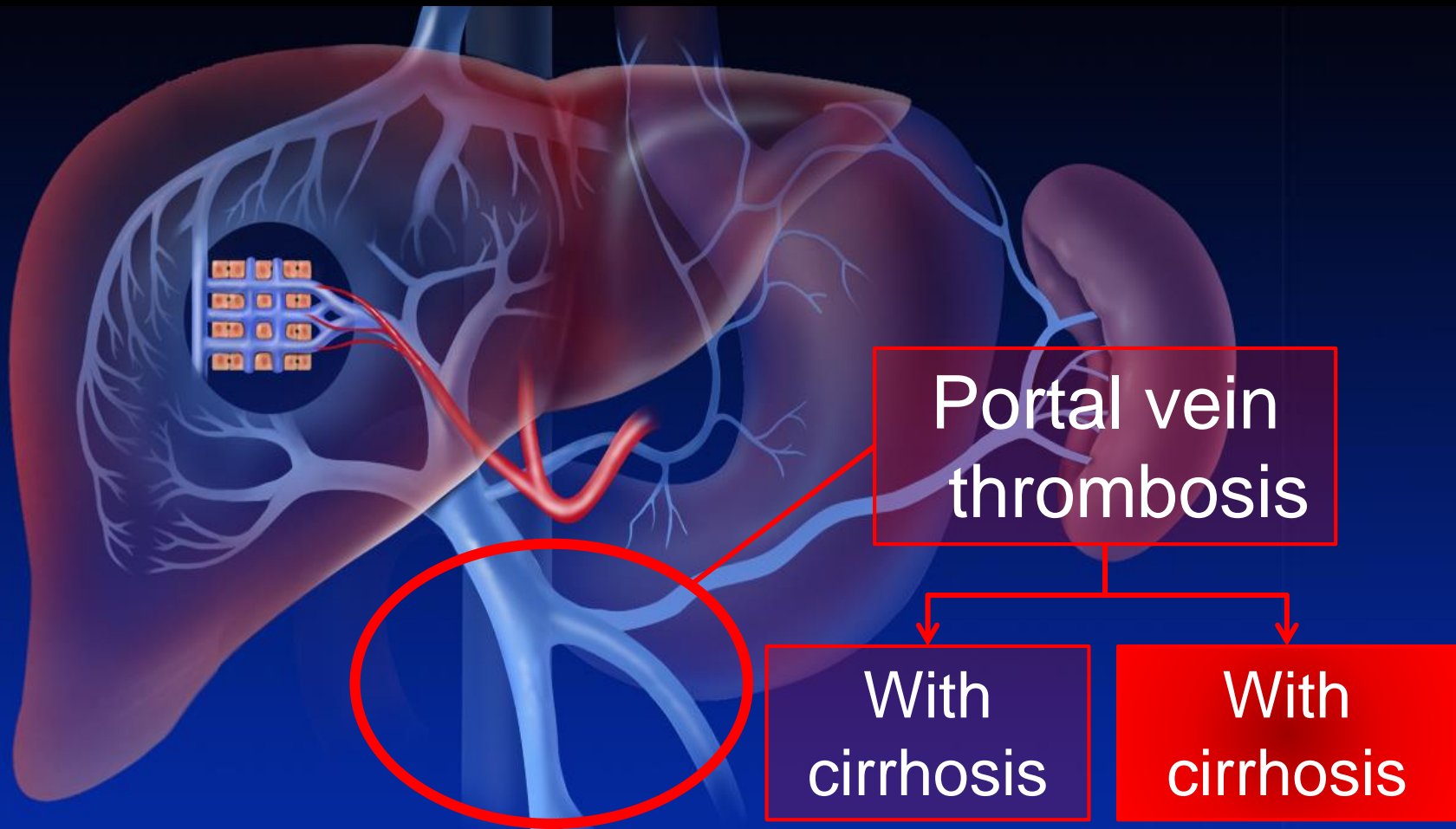
No

Preventive portal vein recanalization with or without TIPS cannot generally be recommended

Yes

Refer to expert centers for endovascular **portal vein recanalization** with or without TIPS

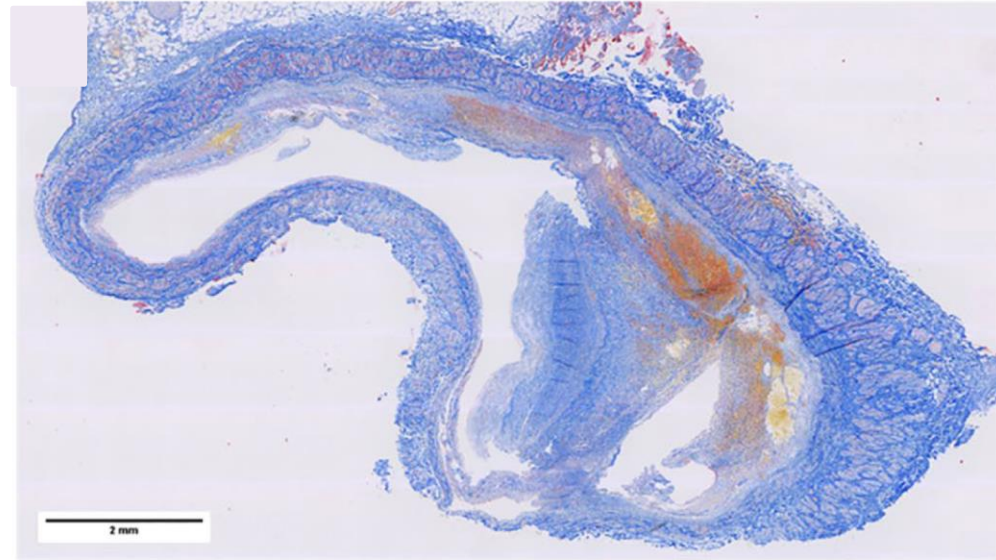
# Treatment of portal vein thrombosis



# Portal vein thrombosis in patients with cirrhosis



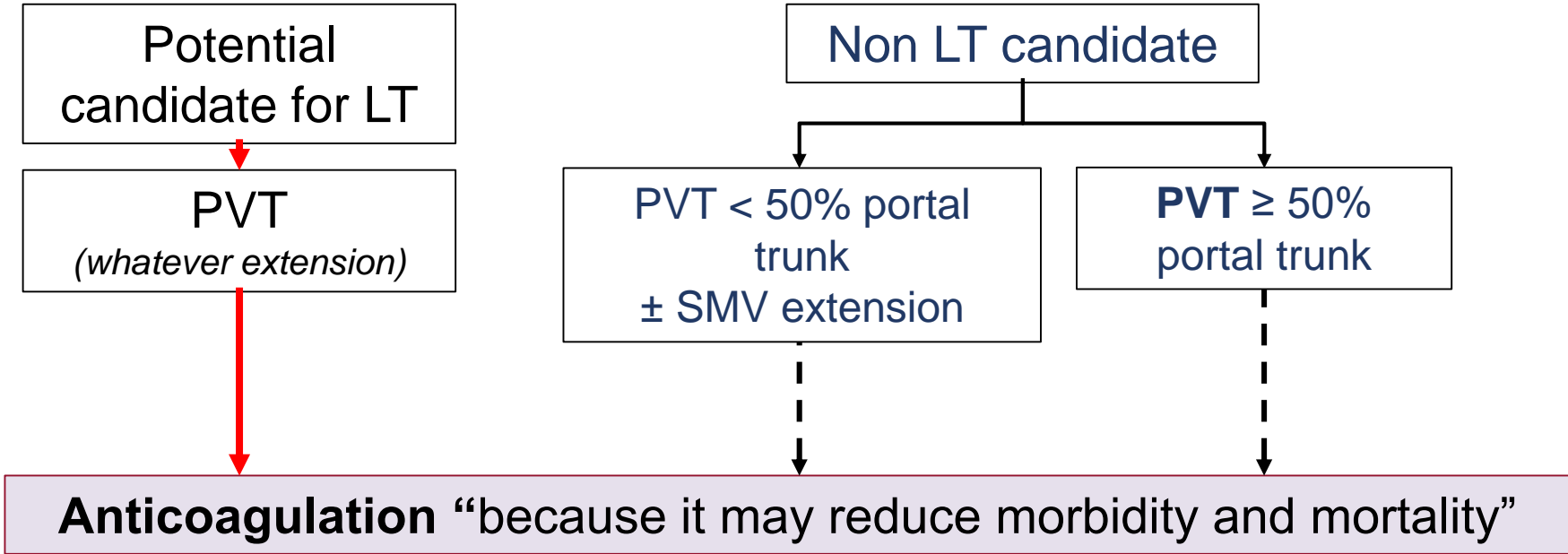
1/3



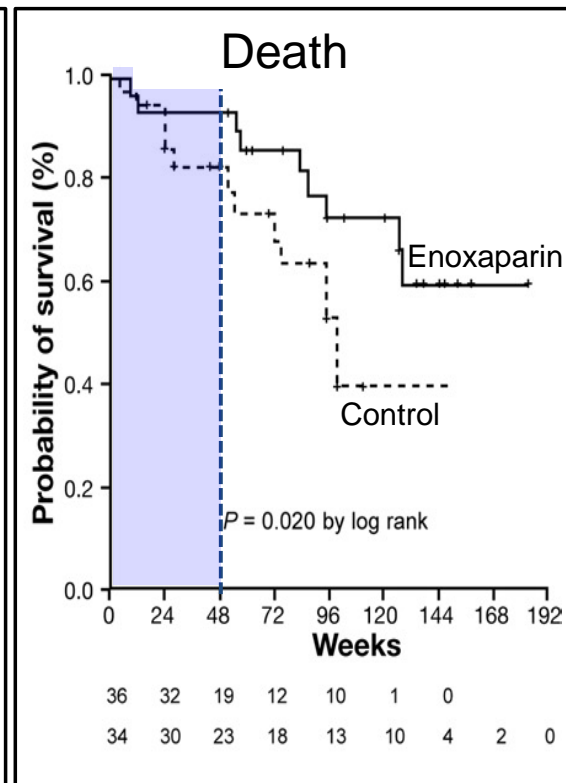
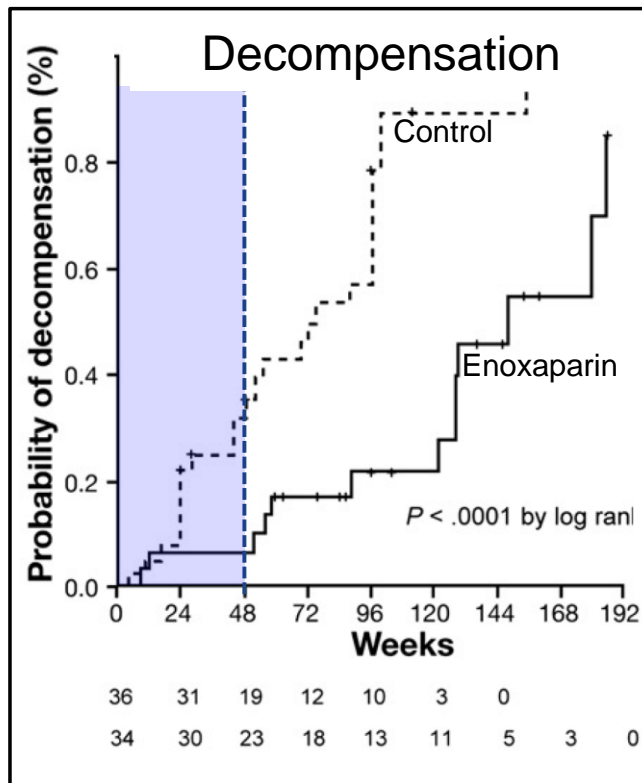
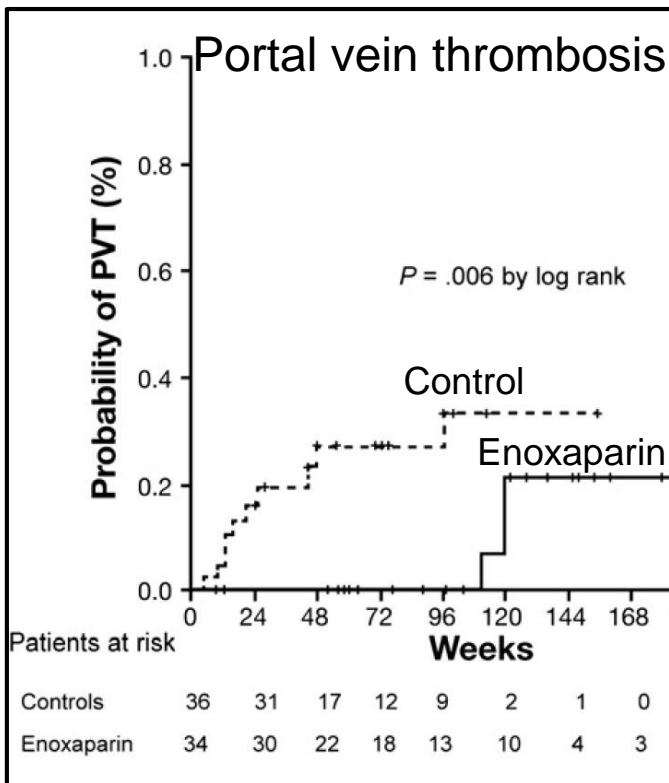
2/3

# PVT in patients with cirrhosis

*screening / 6 mo*



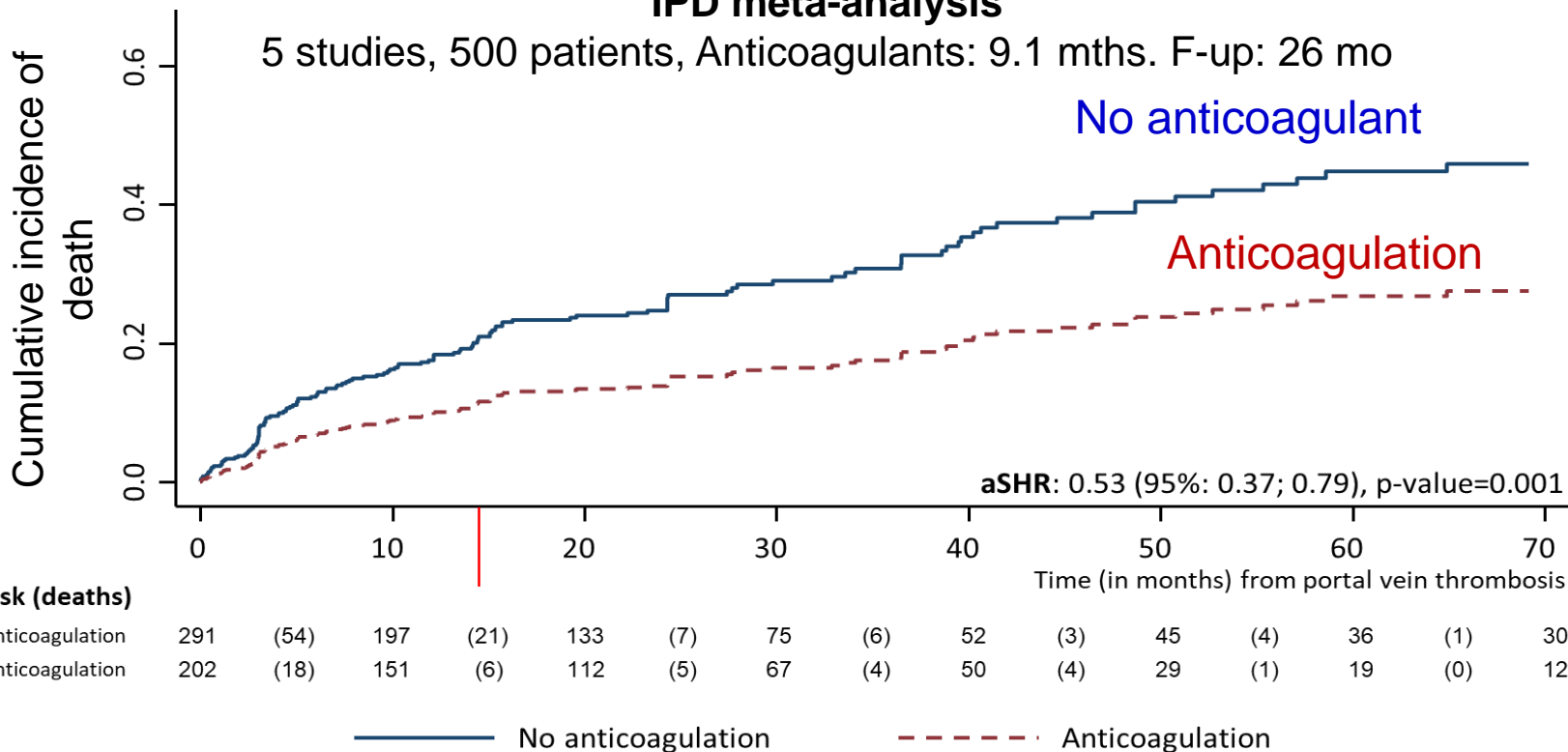
# Anticoagulants in cirrhosis improve outcome



# Anticoagulants in cirrhosis improve outcome

## IPD meta-analysis

5 studies, 500 patients, Anticoagulants: 9.1 mths. F-up: 26 mo



Sub-hazard ratio adjusted (aSHR) by age at diagnosis, etiology, Child, thrombosis extension and localization and variceal prophylaxis  
 Competing risk model with LT

# Anticoagulants in cirrhosis improve outcome

Cirrhosis Child-Pugh B7-C10

**Placebo**

Scheduled: n=80

ITT : n=49

PP: n=41

**Rivaroxaban 10 mg/j**

Scheduled: n=80

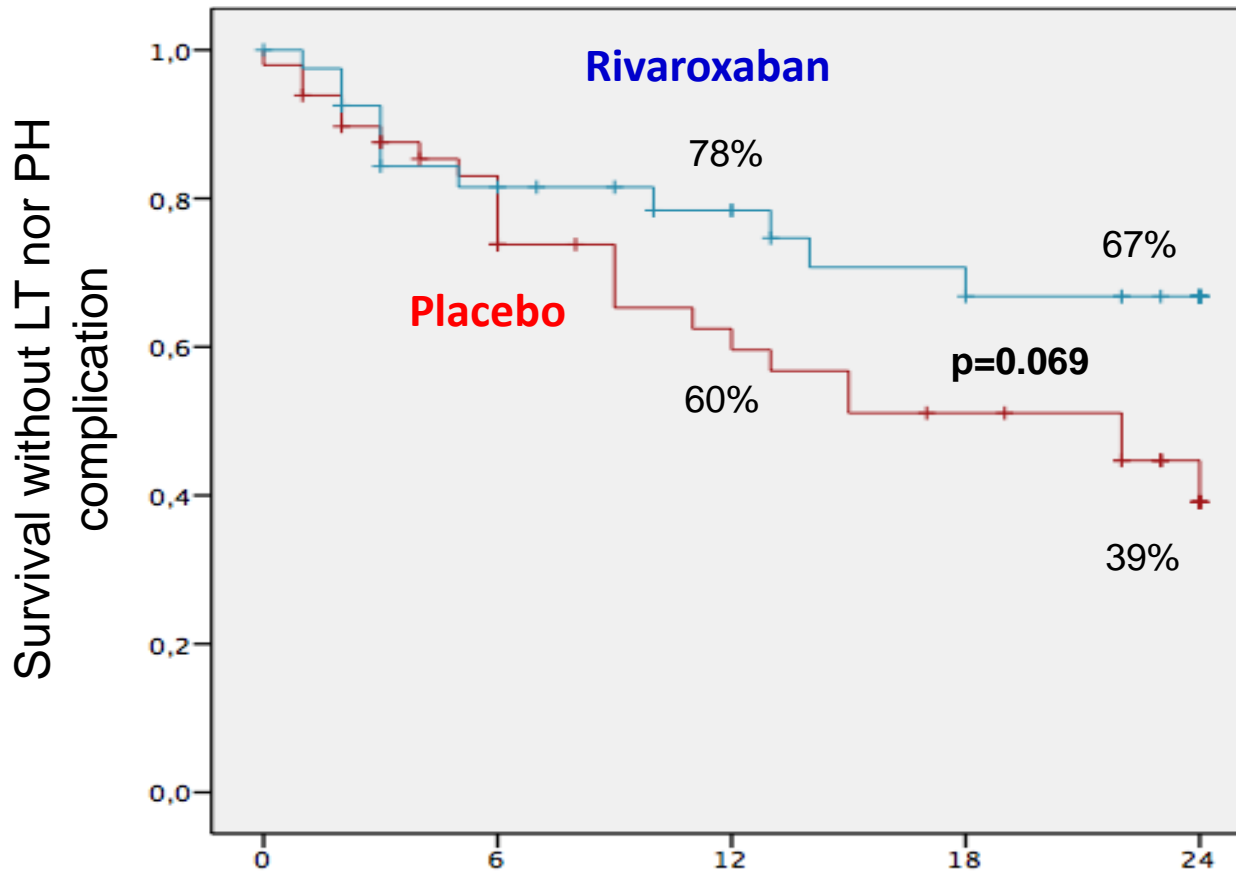
ITT: n=41

PP: n=37

Survival without liver transplantation nor portal hypertension complication at 2 yrs



# CIRROXABAN: ITT analysis



**p=0.038** after adjustment  
on :

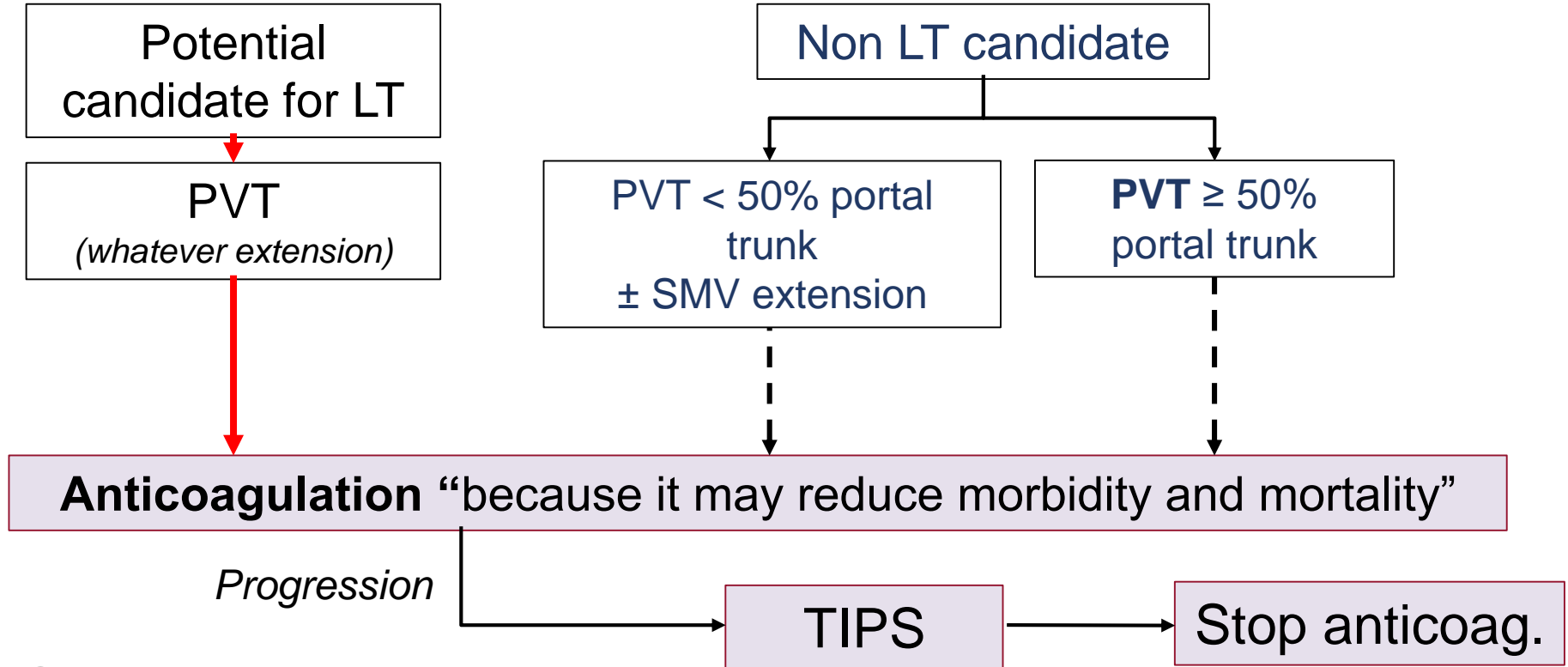
- Child-Pugh
- History of decompensation
- NSBB

Major bleeding:  
p=0.77

Months

# PVT in patients with cirrhosis

*screening / 6 mo*

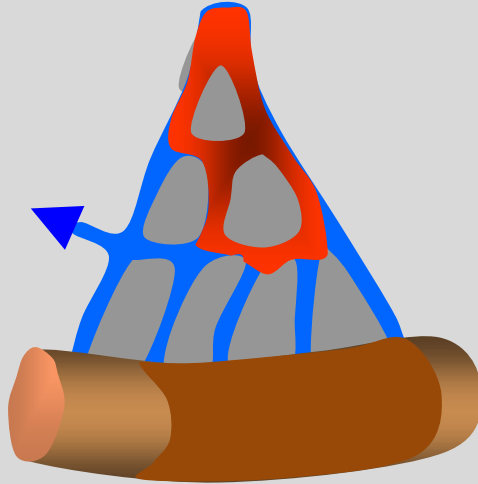


# Portal vein thrombosis (PVT) with cirrhosis

- **Work-up for risk factors for thrombosis:** not recommended
- **Type of anticoagulant:**
  - ✓ Child-Pugh A or B: DOACs can be recommended
  - ✓ Child Pugh C: DOACs not recommended

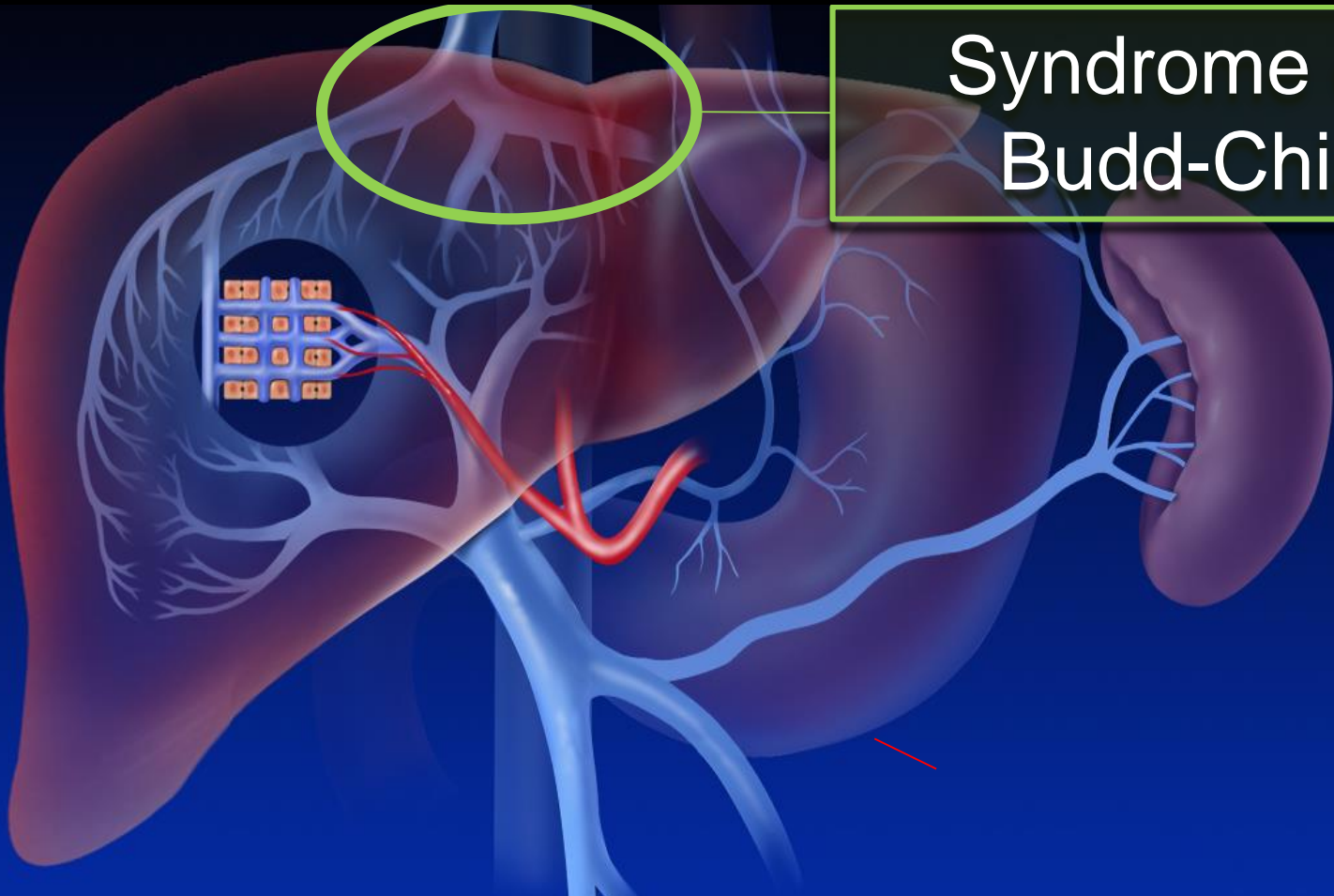
# Thrombose porte : complications

Ischémie  
intestinale



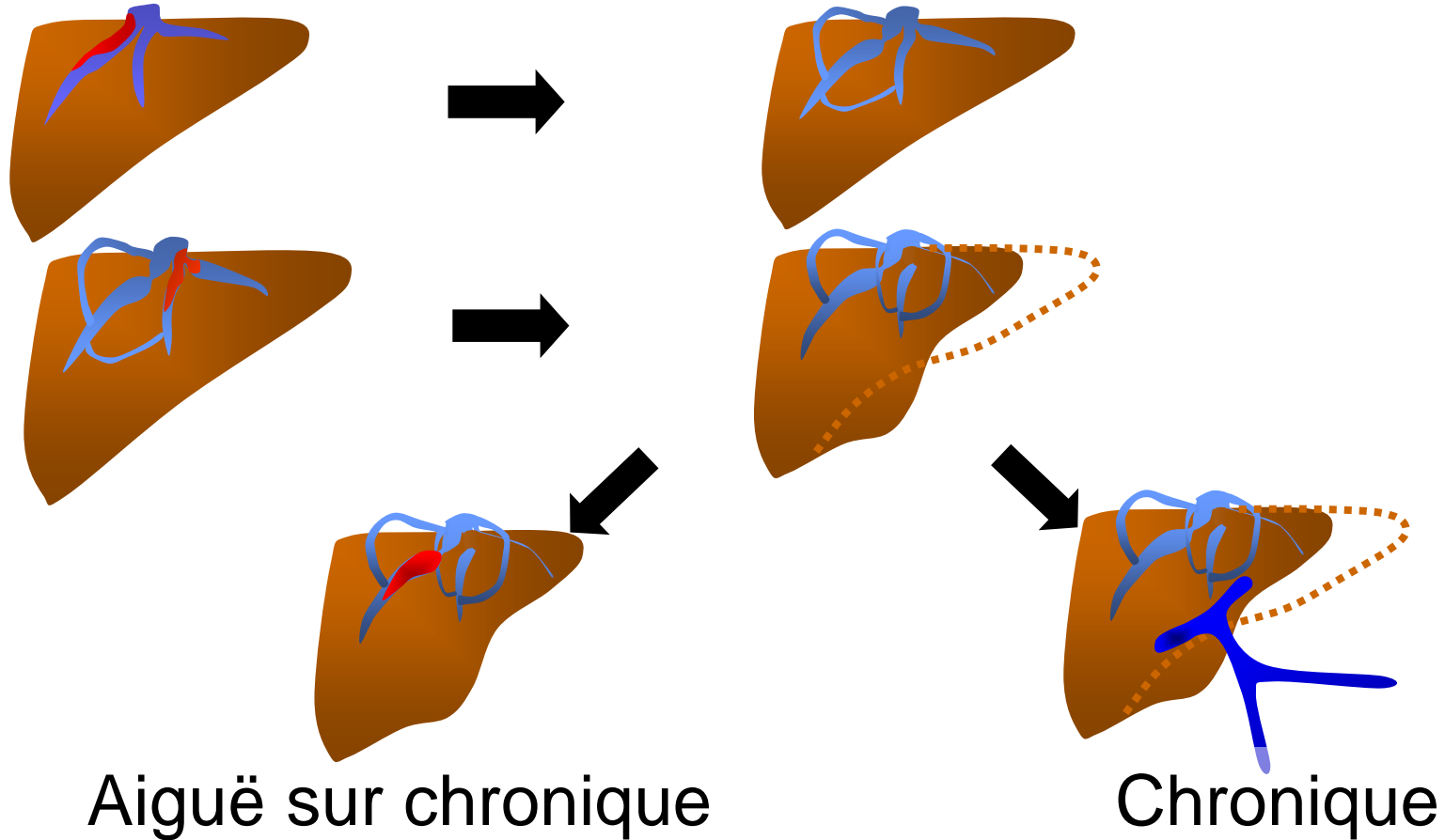
Douleur, Ascite  
Choc

# Maladies vasculaires du foie



Syndrome de  
Budd-Chiari

# SBC primitif : scénario habituel



# SBC primitif : caractéristiques cliniques

**Ascite** 83 %

**Douleurs abdominales** 61%

**Encéphalopathie hépatique** 9%

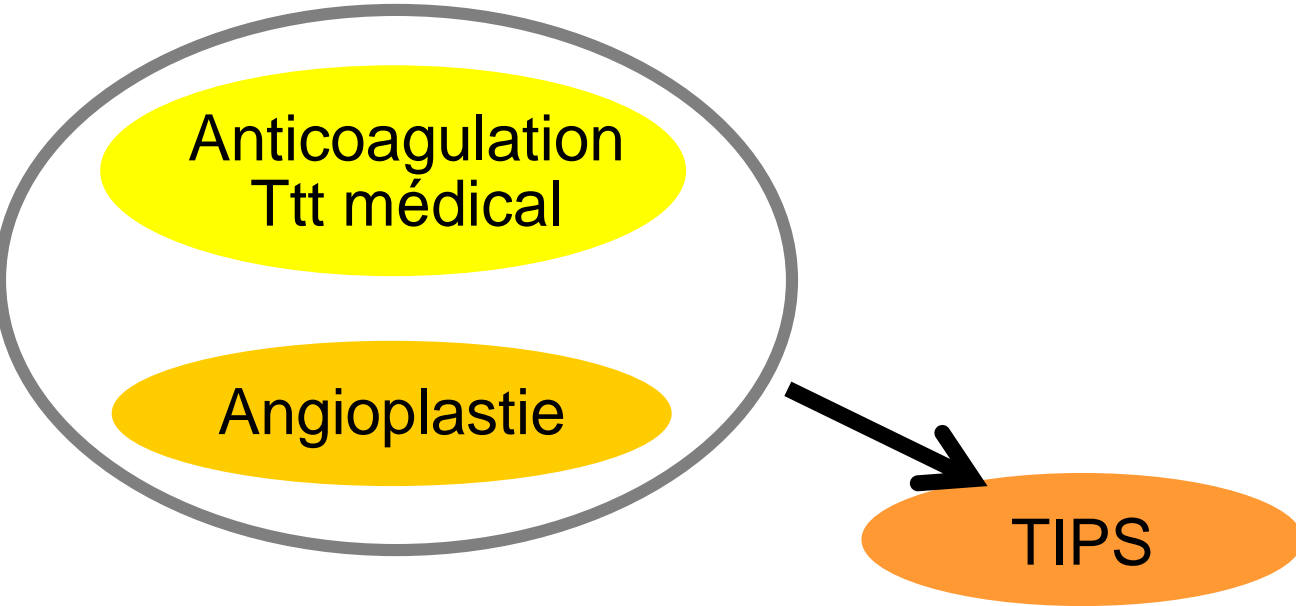
Y penser devant toute maladie aigue ou chronique du foie → **écho-doppler**

**Hépatomégalie** 67 %

**Splénomégalie** 52 %

**Varices œsophagiennes** 58%

# SBC primitif : traitement



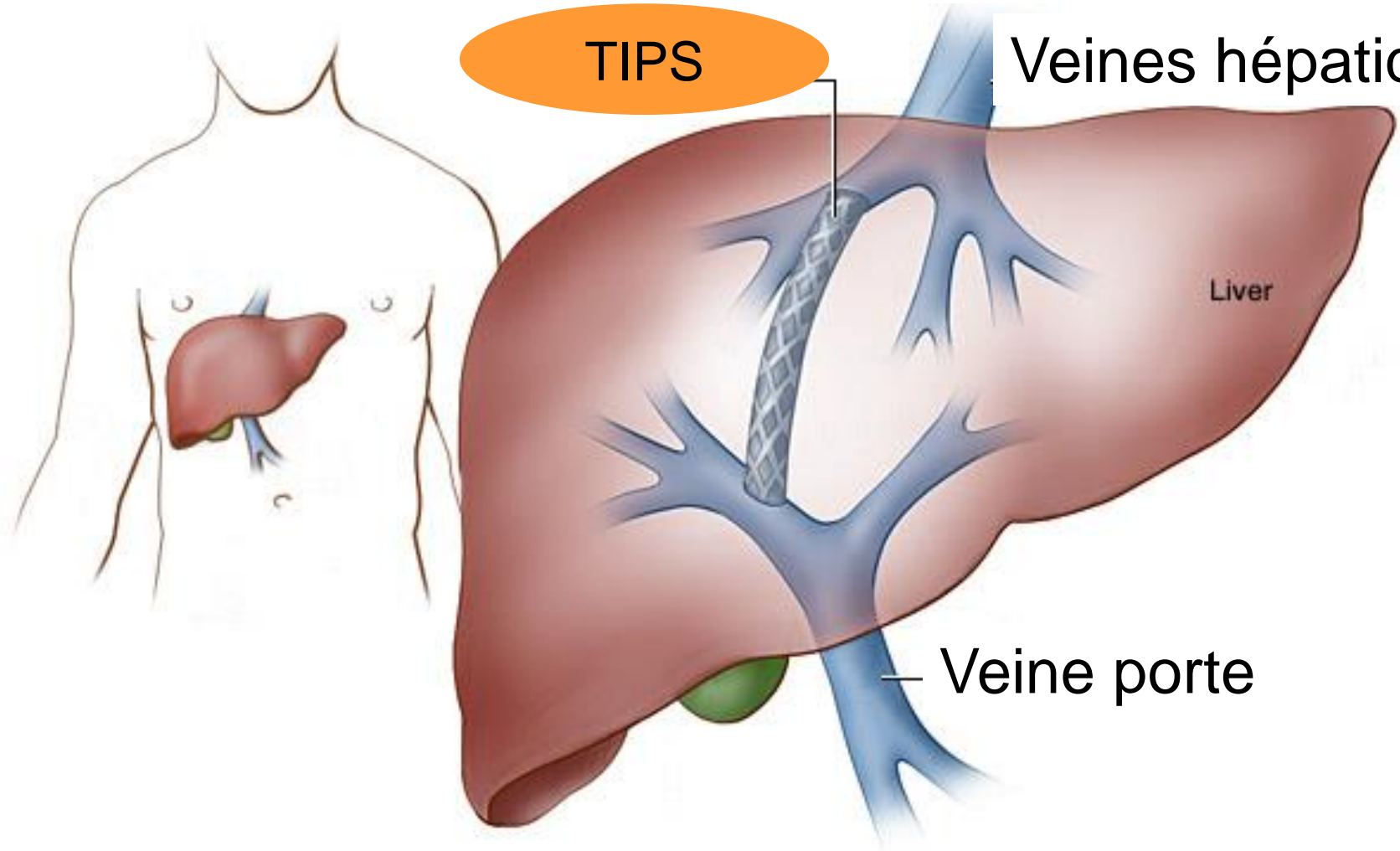


TIPS

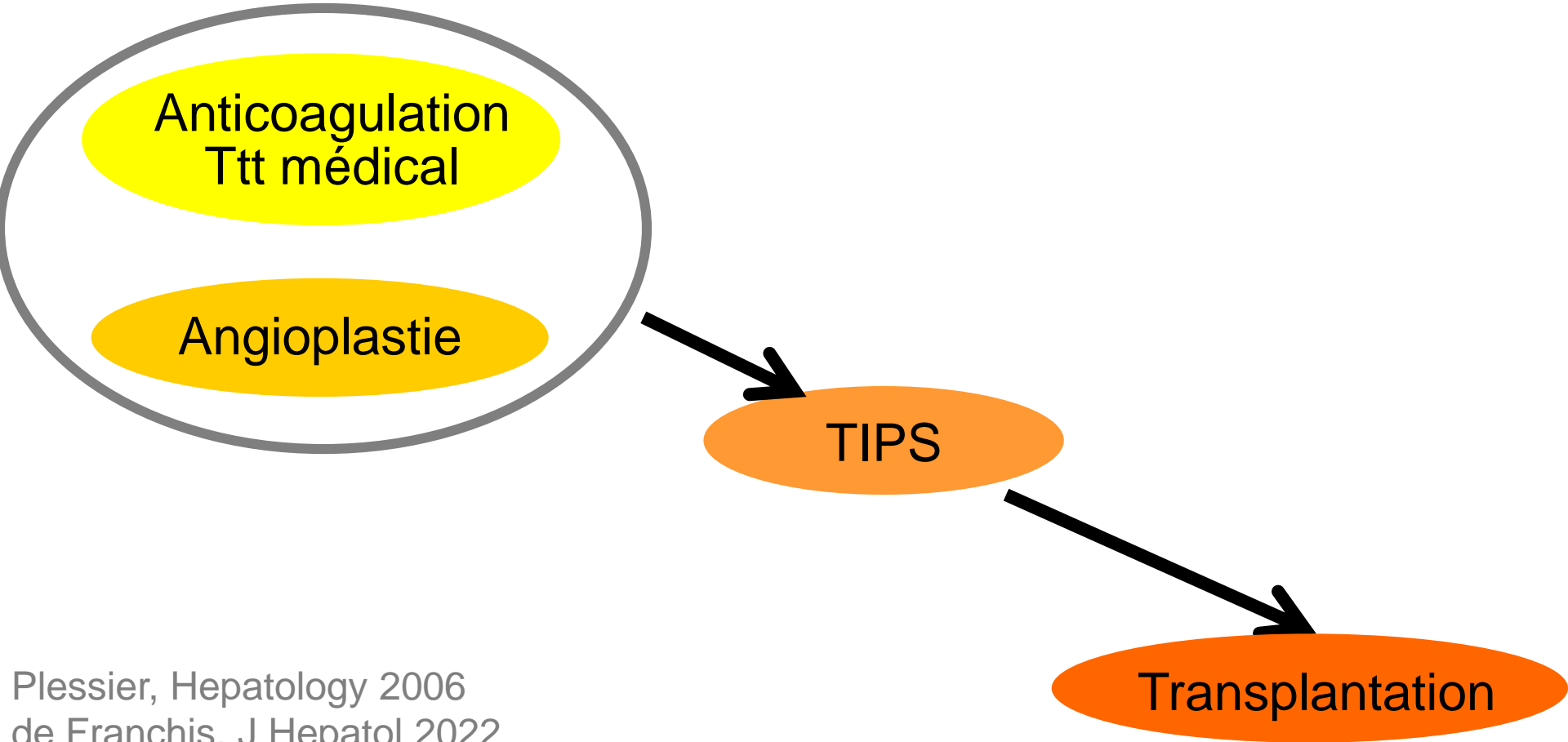
Veines hépatiques

Liver

Veine porte

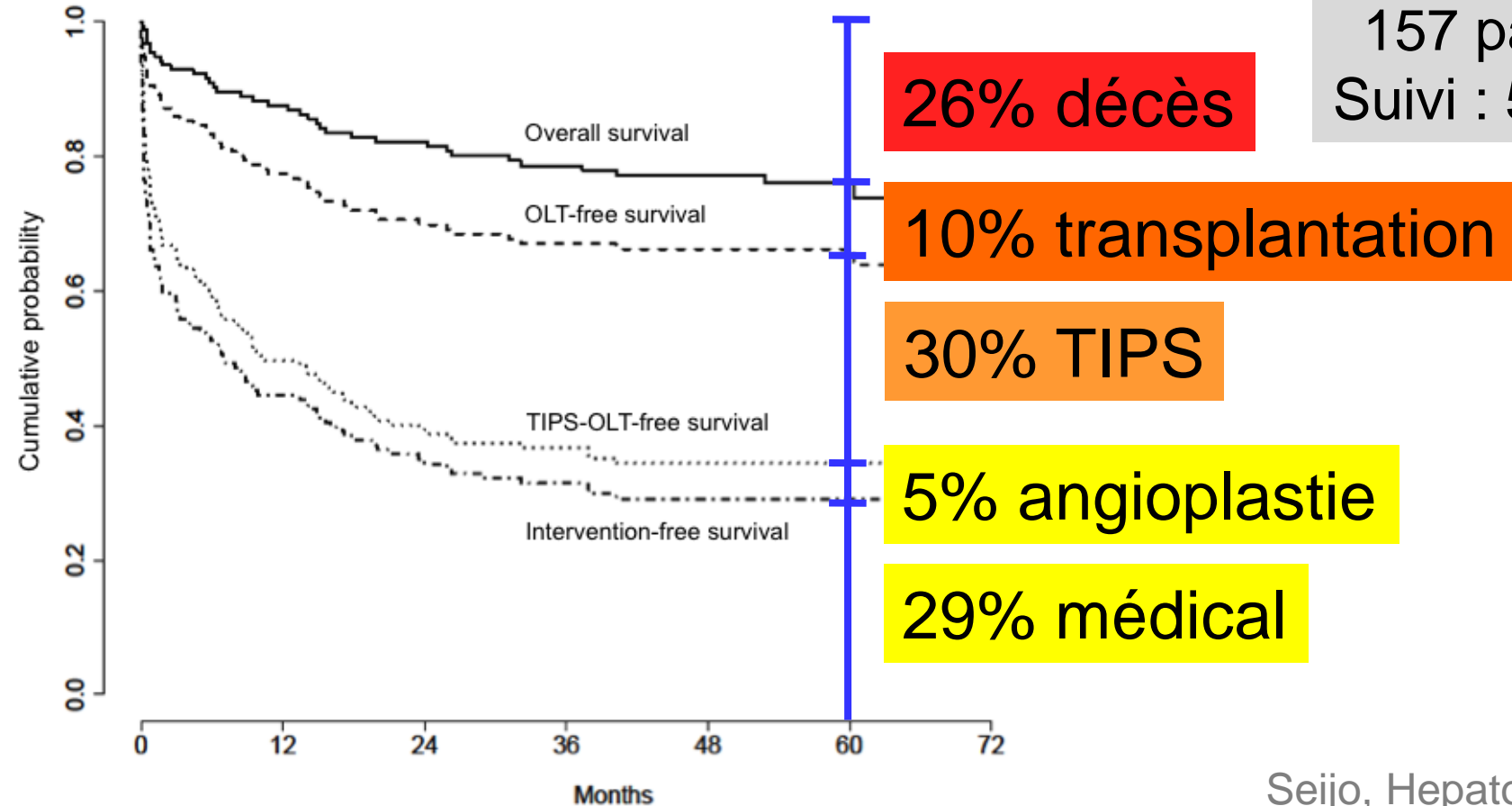


# SBC primitif : traitement



# SBC primitif : évolution

157 patients  
Suivi : 50 mois



# Conclusion: PVT without cirrhosis

- ✓ **Work-up for risk factors for thrombosis +++**
- ✓ Treat underlying conditions (PNH, MPN)
- ✓ Chronic portal vein thrombosis:
  - Strong risk factor → long term anticoagulation
  - No strong risk factor → consider Rivaroxaban 15 mg/d

# Conclusion : PVT with cirrhosis

- **Work-up for risk factors for thrombosis:** not recommended
- **Anticoagulation:**
  - ✓ Recommended if potential transplant candidate
  - ✓ Possible if not potential transplant candidate

# Conclusion : Budd et SOS

- Syndrome de Budd-Chiari :
  - rare, mais y penser tout le temps
  - traitement : stratégie pas-à-pas

# Networks for vascular liver diseases



European  
Reference  
Network

Hepatological Diseases  
(ERN RARE-LIVER)



# VALDIG

VASCULAR LIVER DISEASE GROUP



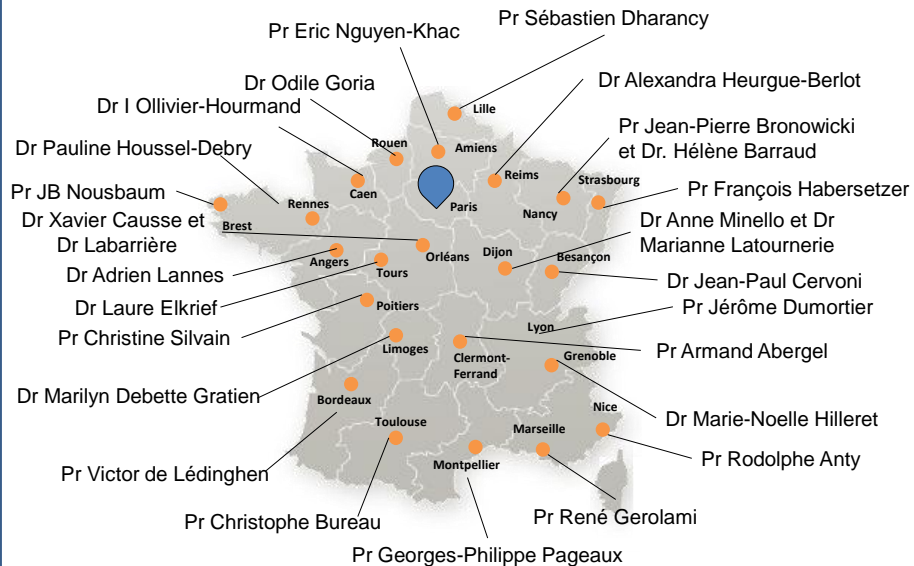
## French network for vascular liver diseases



CENTRE DE RÉFÉRENCE  
MALADIES VASCULAIRES  
DU FOIE



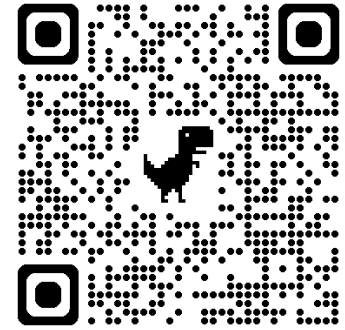
Centre de compétence maladies vasculaires du foie



[crmvf.foie@bjn.aphp.fr](mailto:crmvf.foie@bjn.aphp.fr)

# European vascular liver diseases network

## EURO-VALDI-NET



**Start Date:** 01/11/2024

**End Date:** 01/11/2028

**Action Chair:** Pierre-Emmanuel Rautou

**Action vice-chair:** Virginia Hernandez-Gea





Instituts  
thématiques

**Inserm**

Institut national  
de la santé et de la recherche médicale



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CENTRE de RECHERCHE  
sur l'INFLAMMATION



Hepatology unit, Beaujon Hospital  
Reference center for vascular liver diseases



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Team "vessels in liver diseases"



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