

# Paris Portal Vein thrombosis meeting

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## Portal vein thrombosis in cirrhosis: what place for interventional radiology

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# Disclosures

- W. L. Gore & Associates – Speaker Fees

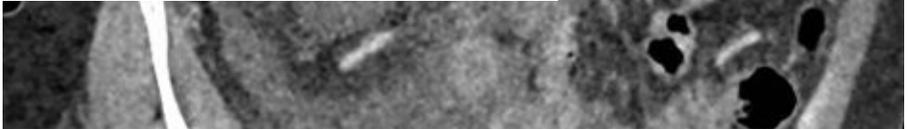
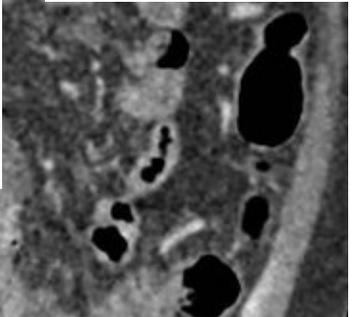
# Clinical case

- 58F, A
- Decon
- Last b
- Diureti
- Not liv
- Recen gastric
- Patien

Would you anticoagulate this patient ?



The thrombus occupies approx 50% of the portal vein diameter although becomes near fully occlusive within the short segment of splenic vein that it occupies. No extension into portal vein branches within the liver or SMV. Liver is well perfused.

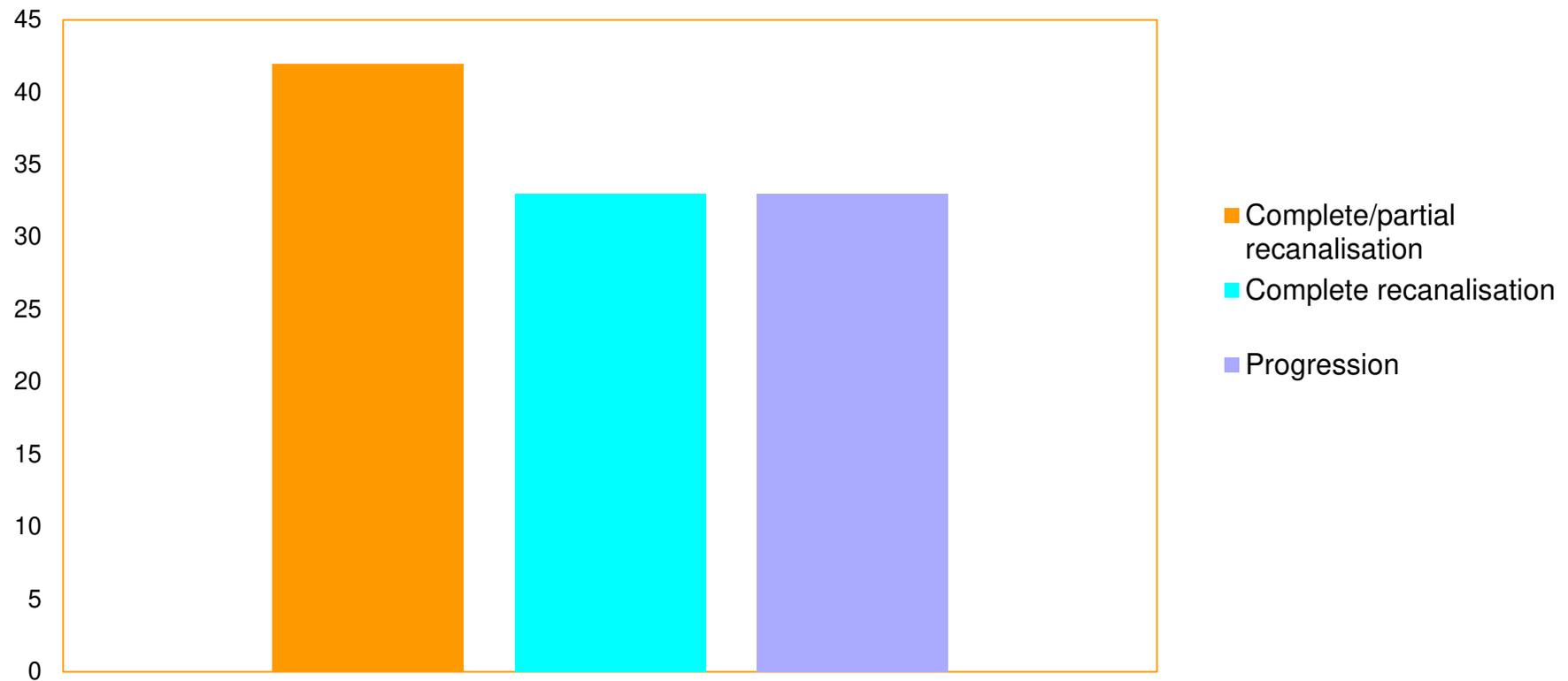


5.7							
96							
57							
NA							
140							
3.8							
73							
21							
51							
128							
795							
38							
2.25		2.00					Ca
2.32		2.24					Corrected Ca
1.09		0.89					Phosphate
4		19	16				CRP
116	115	85	79	79	75		Hb g/L
1.4	1.6	3.5	1.8	1.5	1.8		WBC
45	73	73	54	49	59		PLATS
1.2	1.2	1.4		1.4			INR

# Introduction

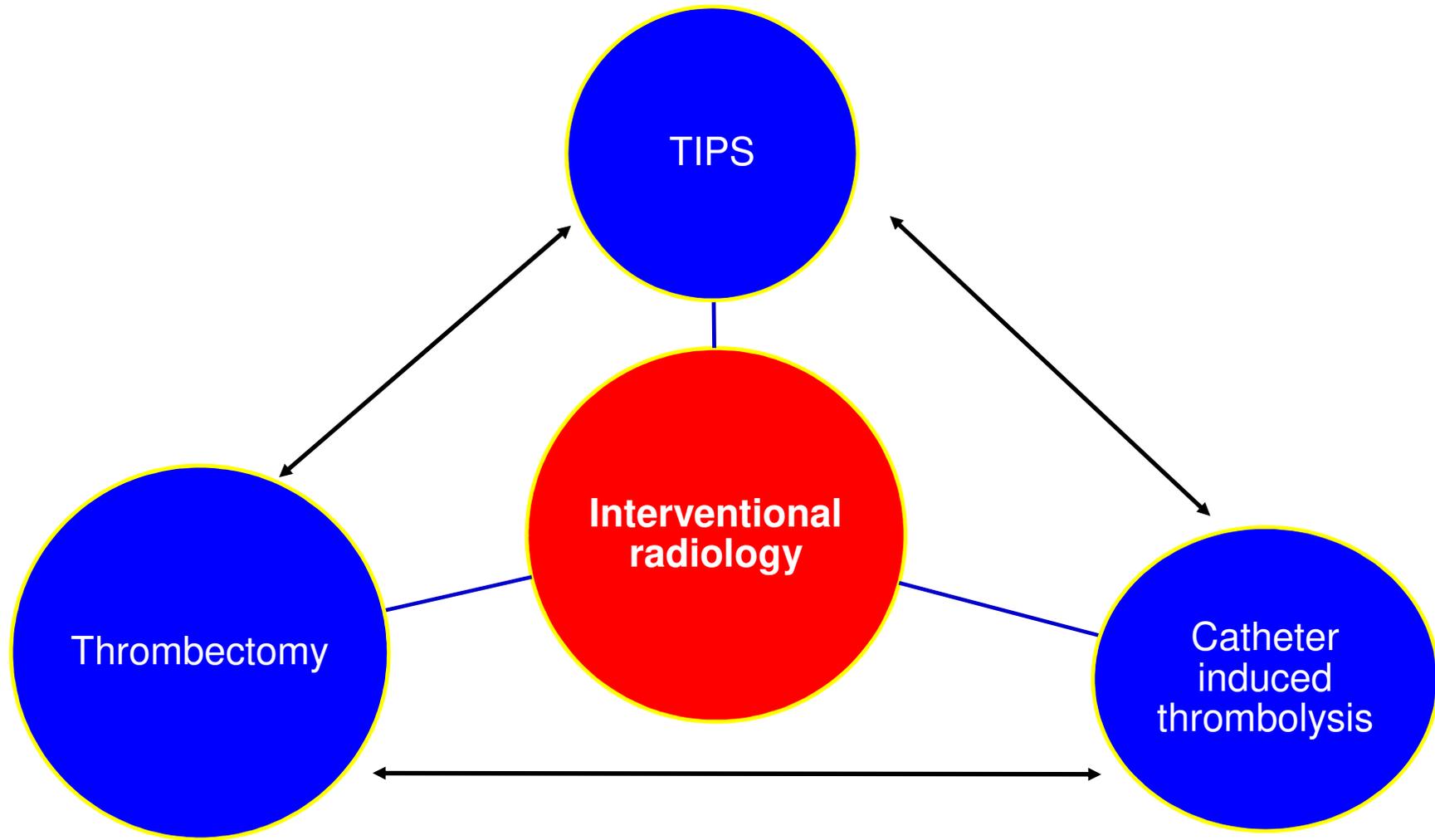
- PVT in cirrhosis occurs with increasing prevalence and incidence in advanced cirrhosis
- Recanalisation can be as high as 70% in compensated cirrhosis
- Decompensated cirrhosis – as low as 2% recanalization and up to 70% progress
- Significant implications of complete PVT for patients on transplant waiting lists.
- The role of anticoagulation remains an area of debate
- Interventional radiology is reserved for selected patients

# Natural history of PVT in cirrhosis - Recanalisation



Loffredo et al, 2017

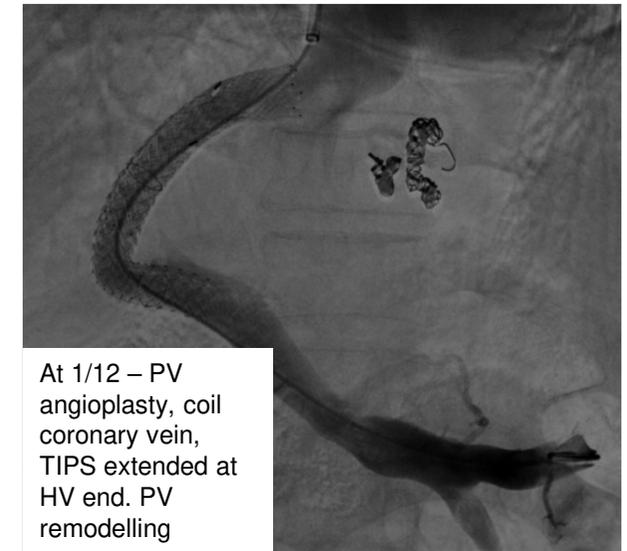
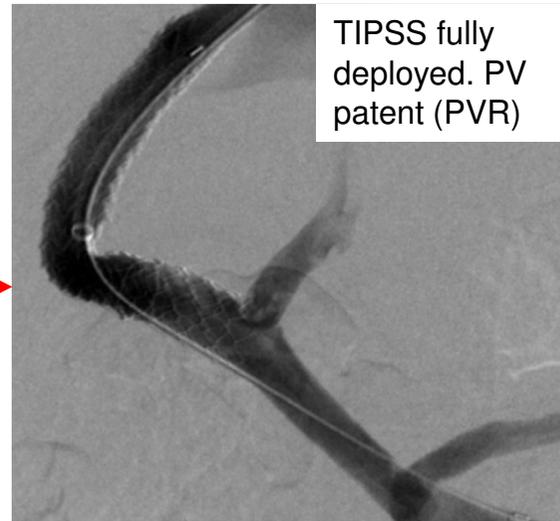
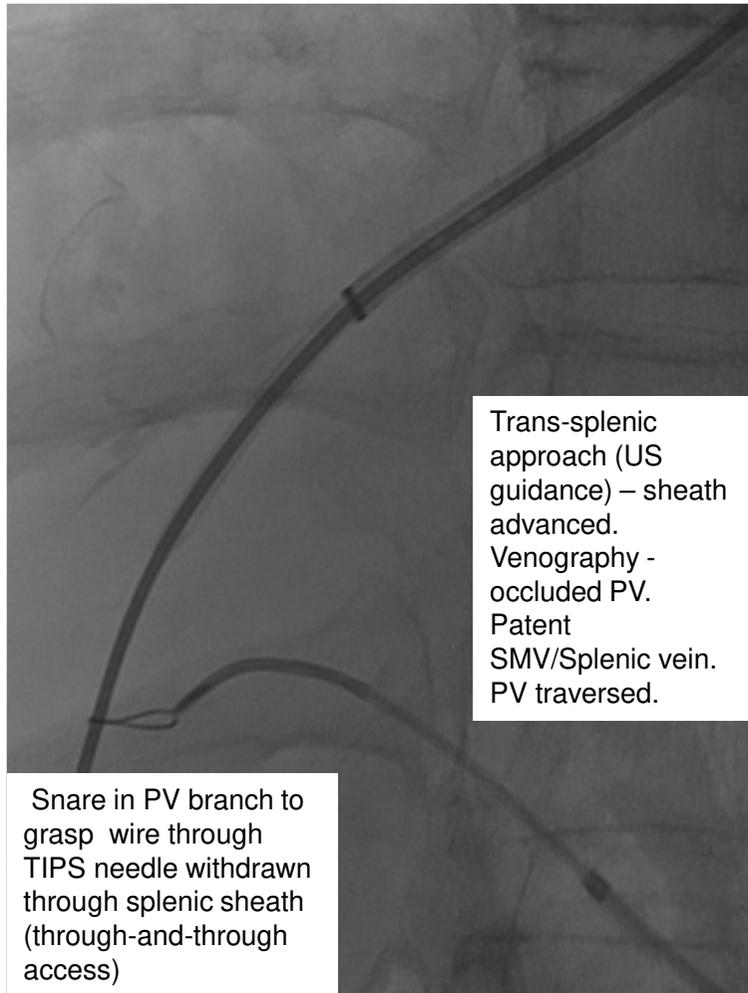
# PVT in cirrhosis



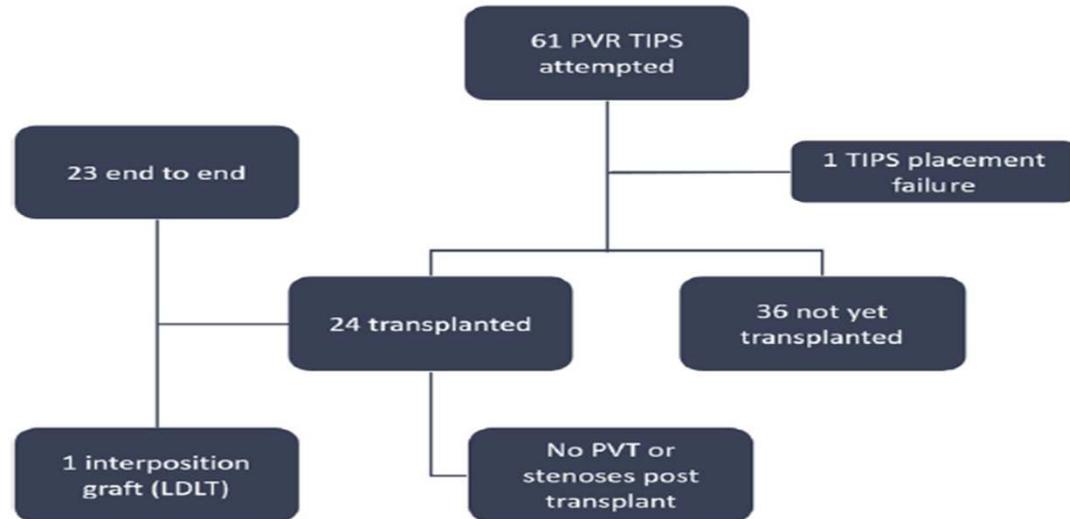
# TIPS for PVT in cirrhosis

- Generally feasible in partial or occlusive PVT
- Cavernoma or unidentifiable intrahepatic PV require particular expertise
- Transsplenic route used but challenging (PVR-TIPS in Tx candidates to facilitate surgery)
- TIPS may not be possible if absence of landing zone in PV or SMV/SPV confluence in total PVT ± cavernoma
- Important of expert centres – at least 20 TIPS per year

# PVR - TIPS



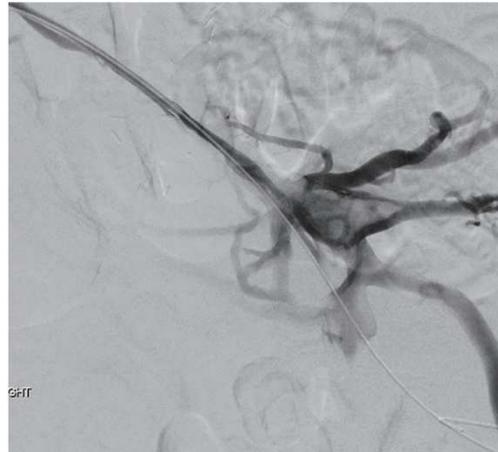
## PVR-TIPS Outcomes



# Mechanical thrombectomy



Portal venogram through transhepatic access - MPV thrombus extending to SMV.



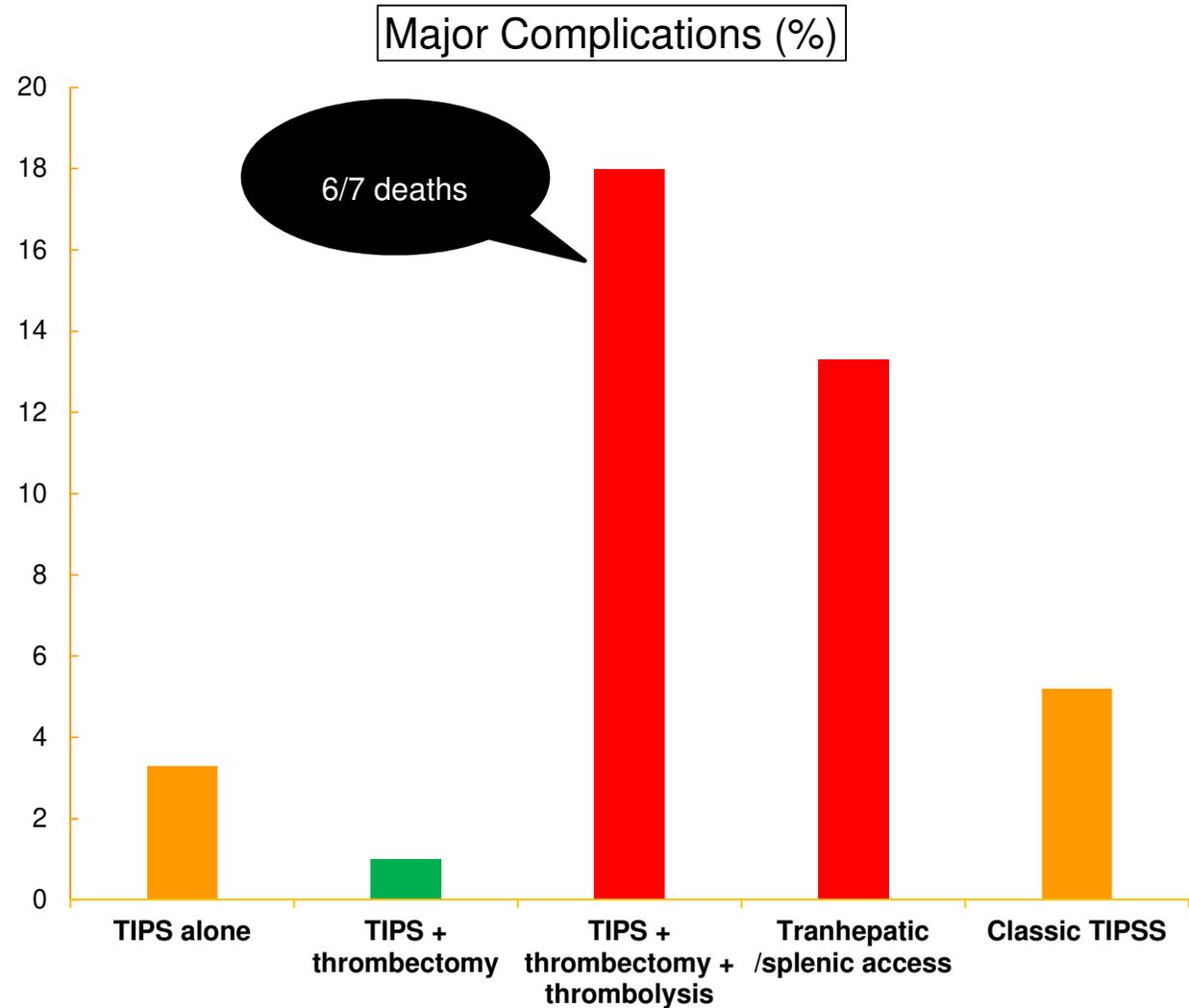
Alteplase and balloon venoplasty – partial recanalised PV.



Angiojet mechanical thrombectomy – improved PV flow

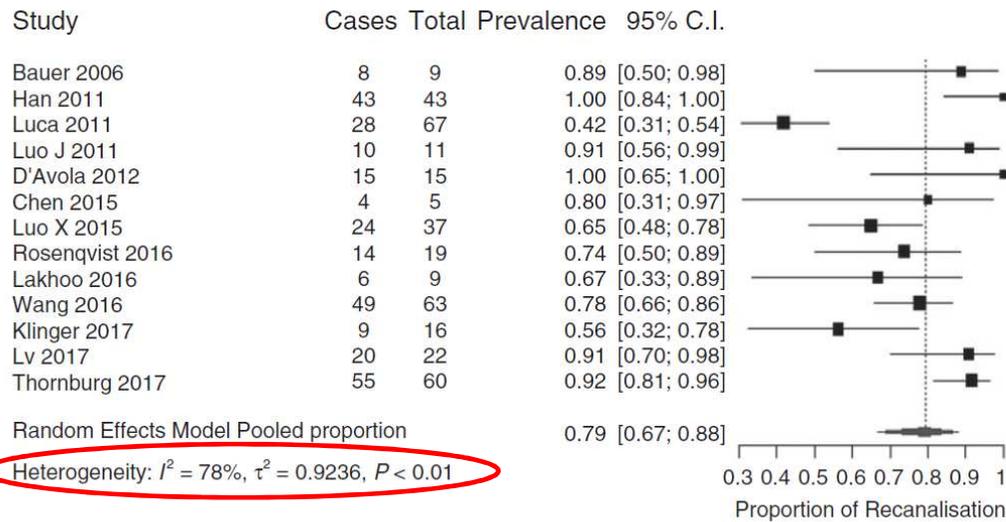
# TIPSS in PVT - Rodrigues et al, 2019

- 399 patients (92% cirrhotic)
- PVT was complete in 46%, chronic in 87%,
- Cavernous transformation (17%), SMV involvement (55%).
- 89-98% success (more without cavernoma)
- 89% 1 year survival
- 10% major complication in expert centres

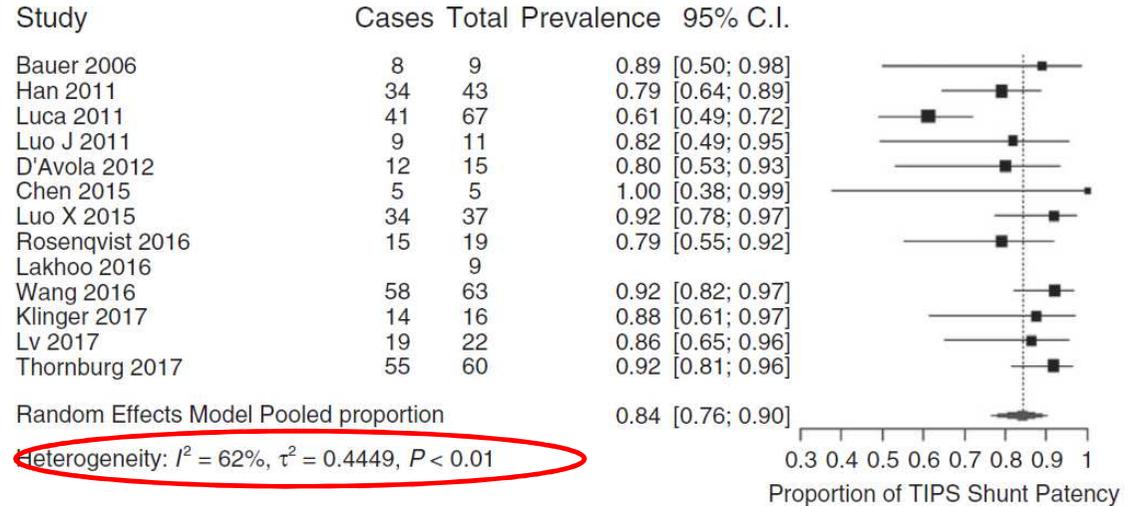


# TIPSS in PVT - Rodrigues et al, 2019

(C) Overall 12-month portal vein recanalisation rate



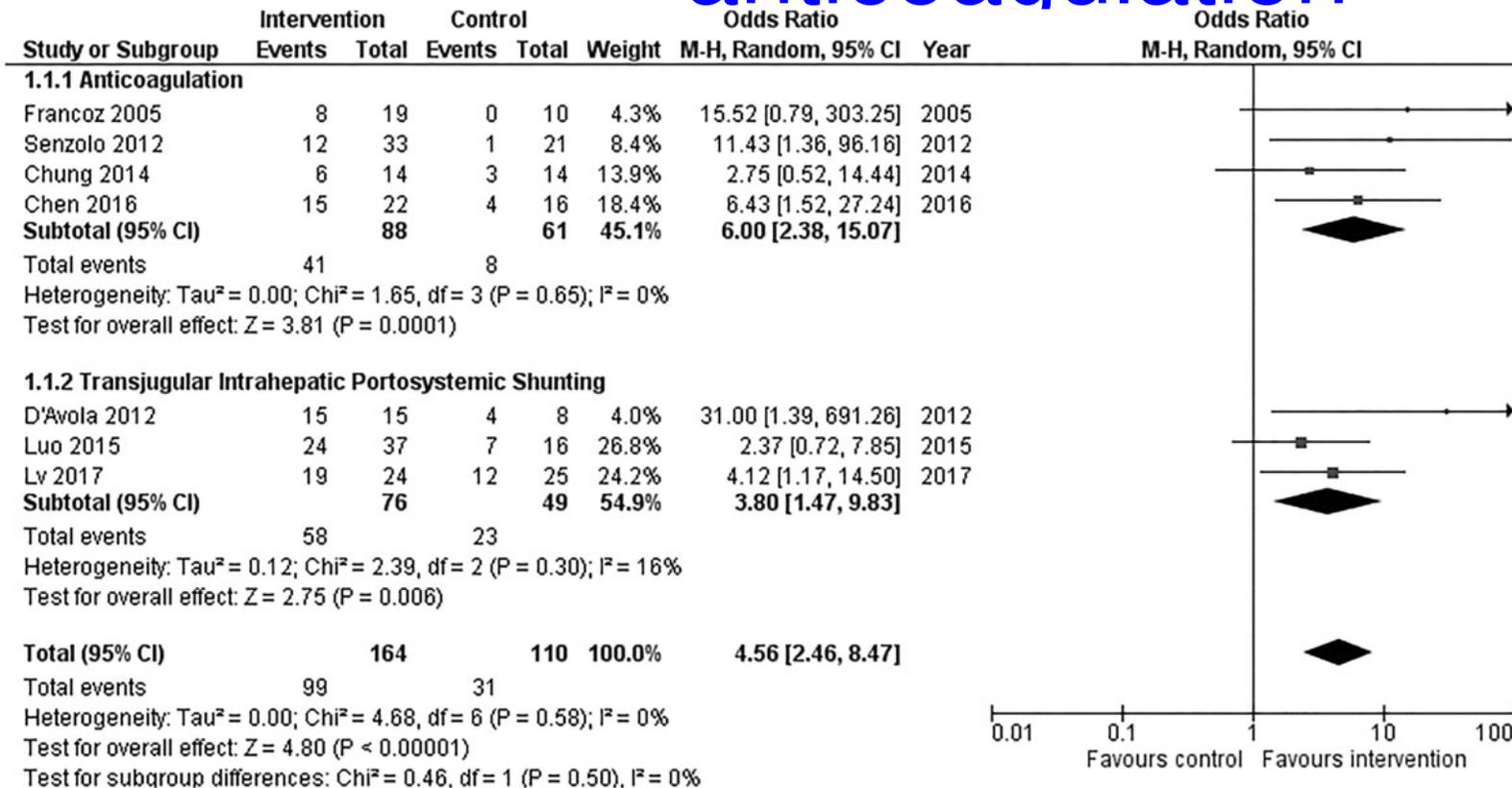
(D) Overall 12-month TIPSS Patency rate



- In studies with only cirrhotic patients – recanalization 81%.
- Significant heterogeneity did not allow analysis of recent vs chronic PVT
- More recanalisation without SMV involvement
- No impact of post TIPSS anticoagulation

- In studies of covered stents (n=5, 201 patients) 89% patency with no heterogeneity
- No impact of post TIPSS anticoagulation or cavernous transformation
- Better patency without SMV involvement
- 23% hepatic encephalopathy

# Chronic PVT in cirrhosis - TIPS or anticoagulation

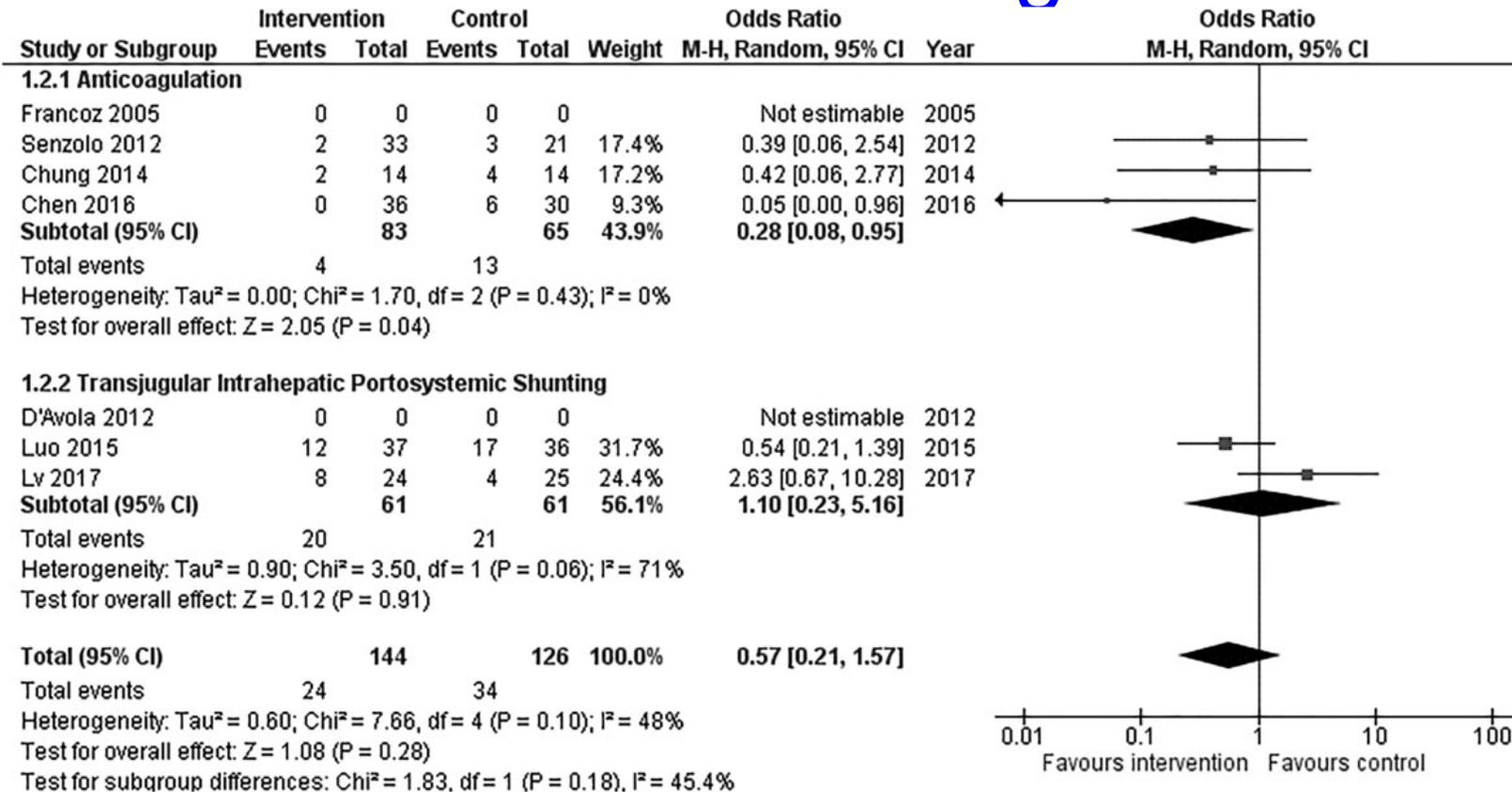


- TIPS (148); AC (179)
- AC or TIPS resulted in higher recanalization without heterogeneity
- Higher recanalization rate for AC

Portal vein recanalization

Davis, 2019

# Chronic PVT in cirrhosis - TIPS or anticoagulation

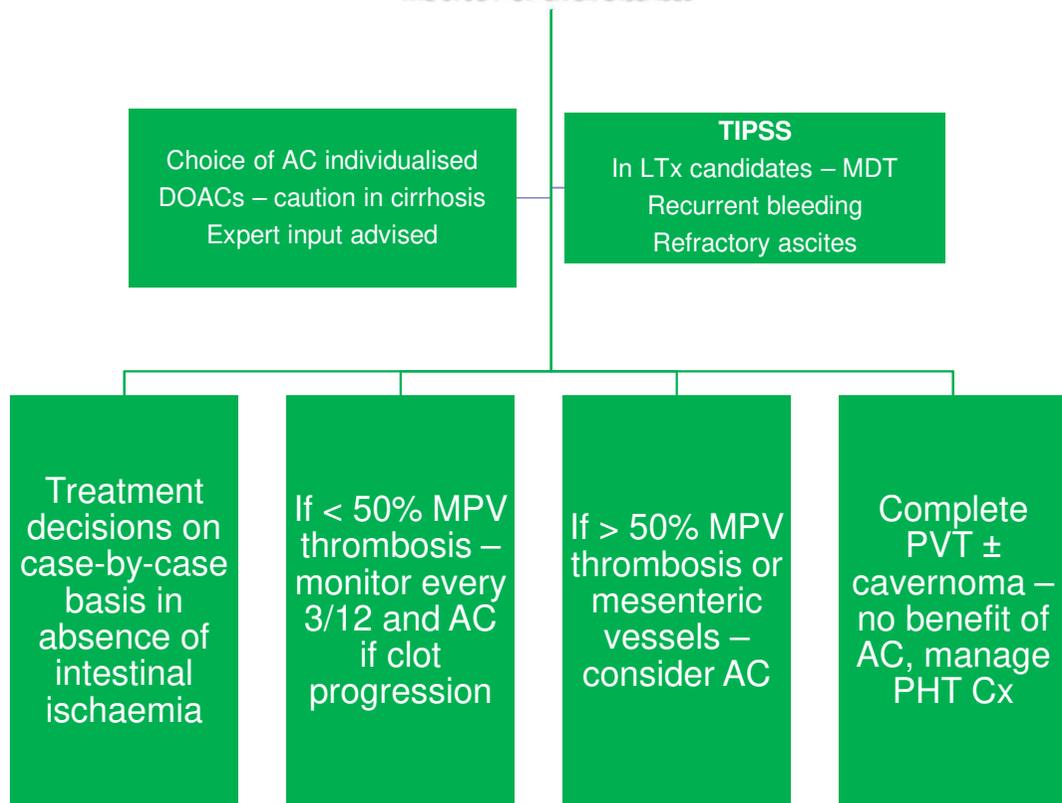


- No difference overall without heterogeneity
- AC – improved mortality without heterogeneity
- TIPSS – no benefit in mortality but heterogeneity seen

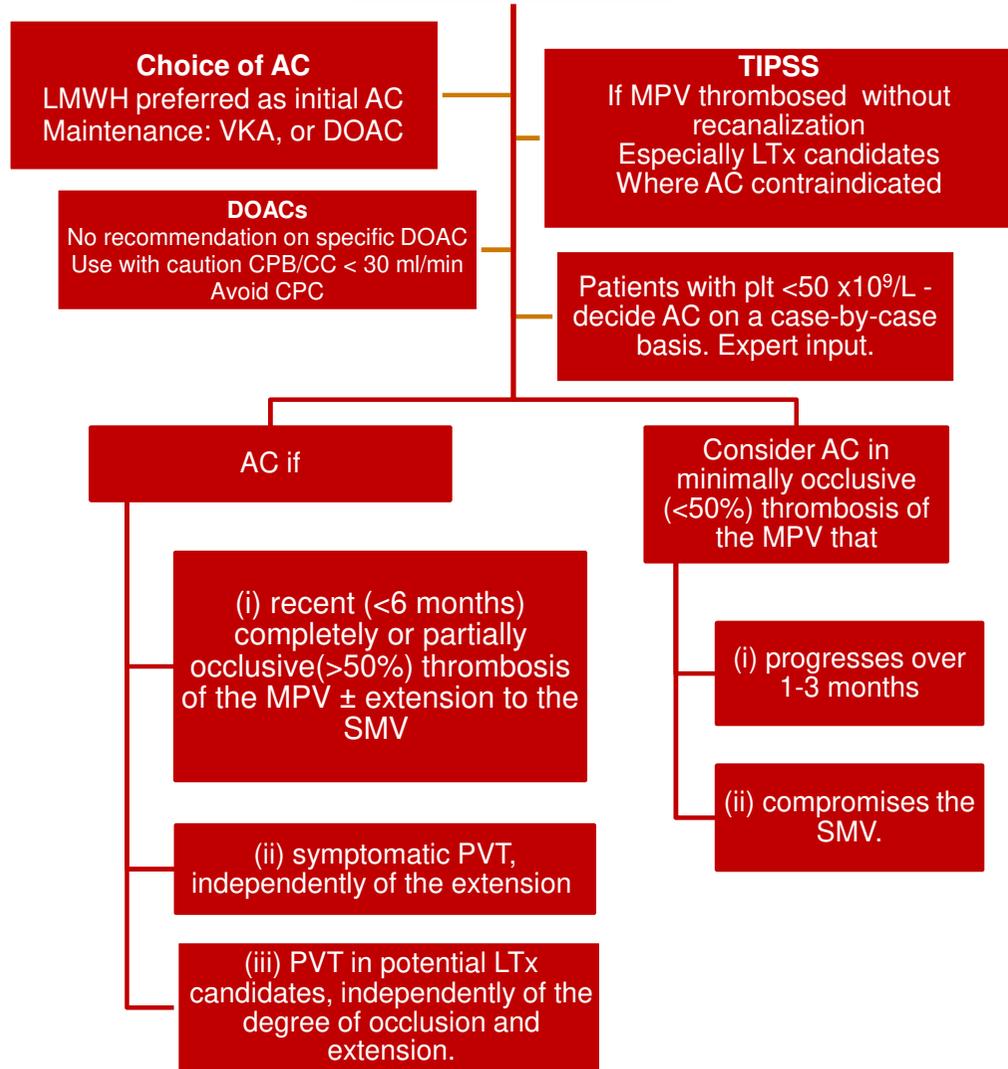
Mortality

Davis, 2019

# International guidance on anticoagulation and IR in cirrhotic PVT



## Baveno VII



# Clinical case – to anticoagulate or not



50% occlusive PVT



Recent variceal haemorrhage



Extension to splenic vein



Platelets  $<50 \times 10^9/L$



Potential liver Tx candidate

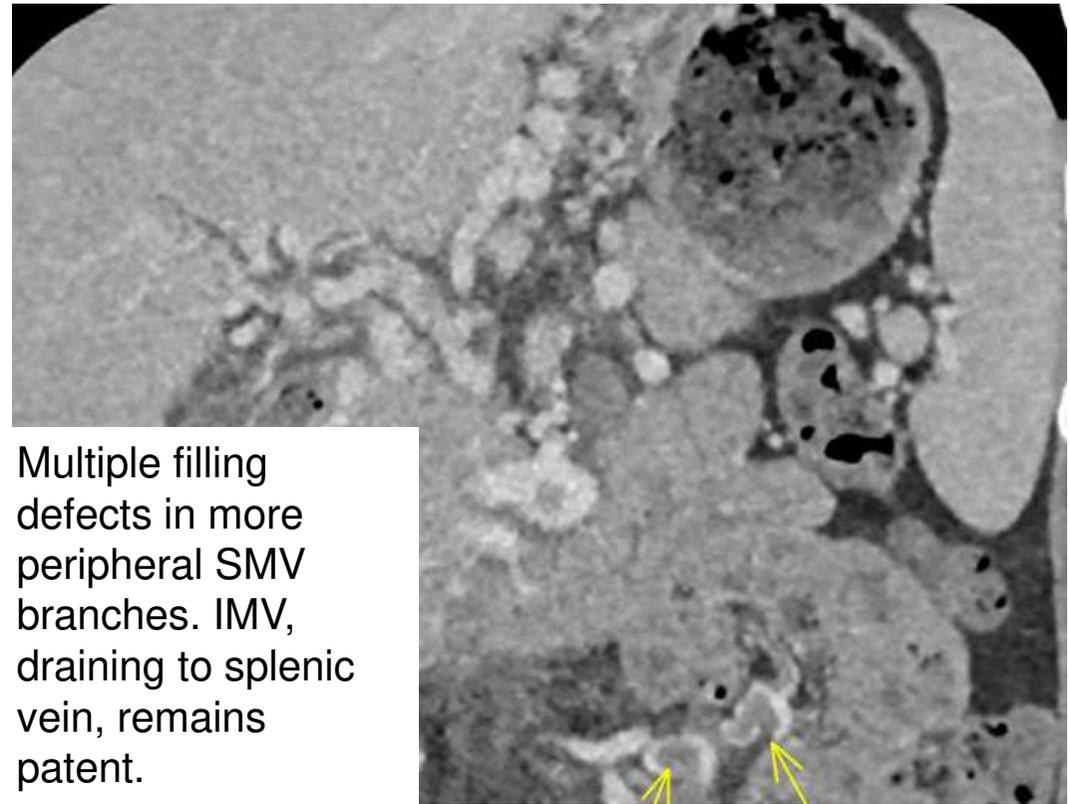
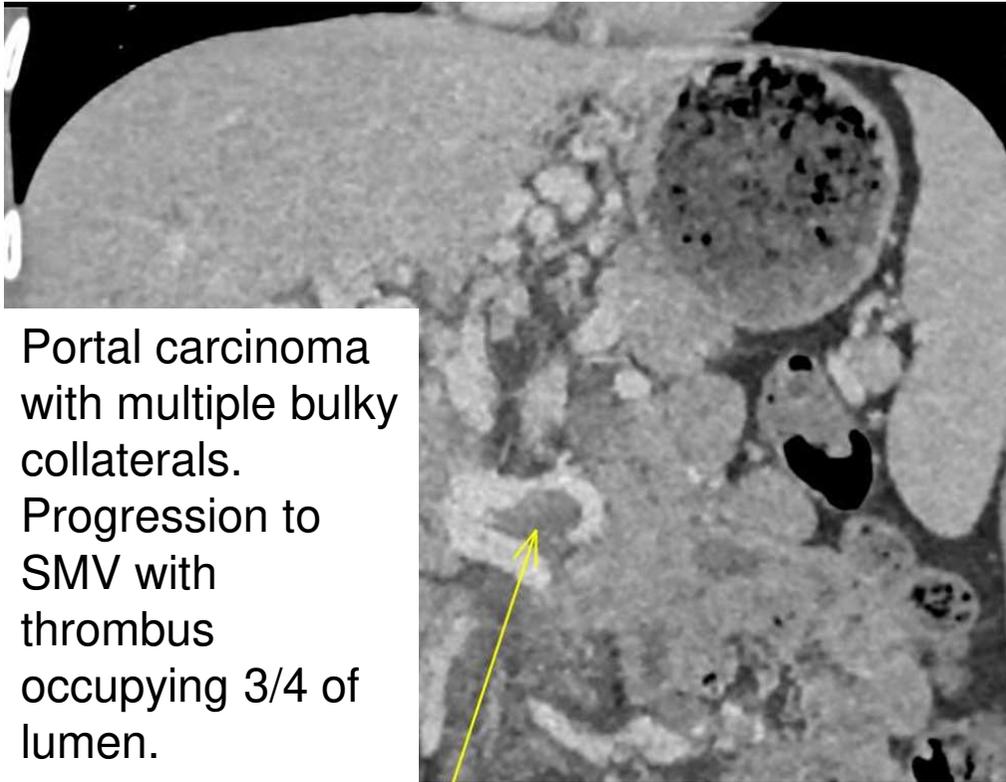
## On balance due to:

- Risk of progression and complications of portal hypertension
- Impact on Tx candidacy

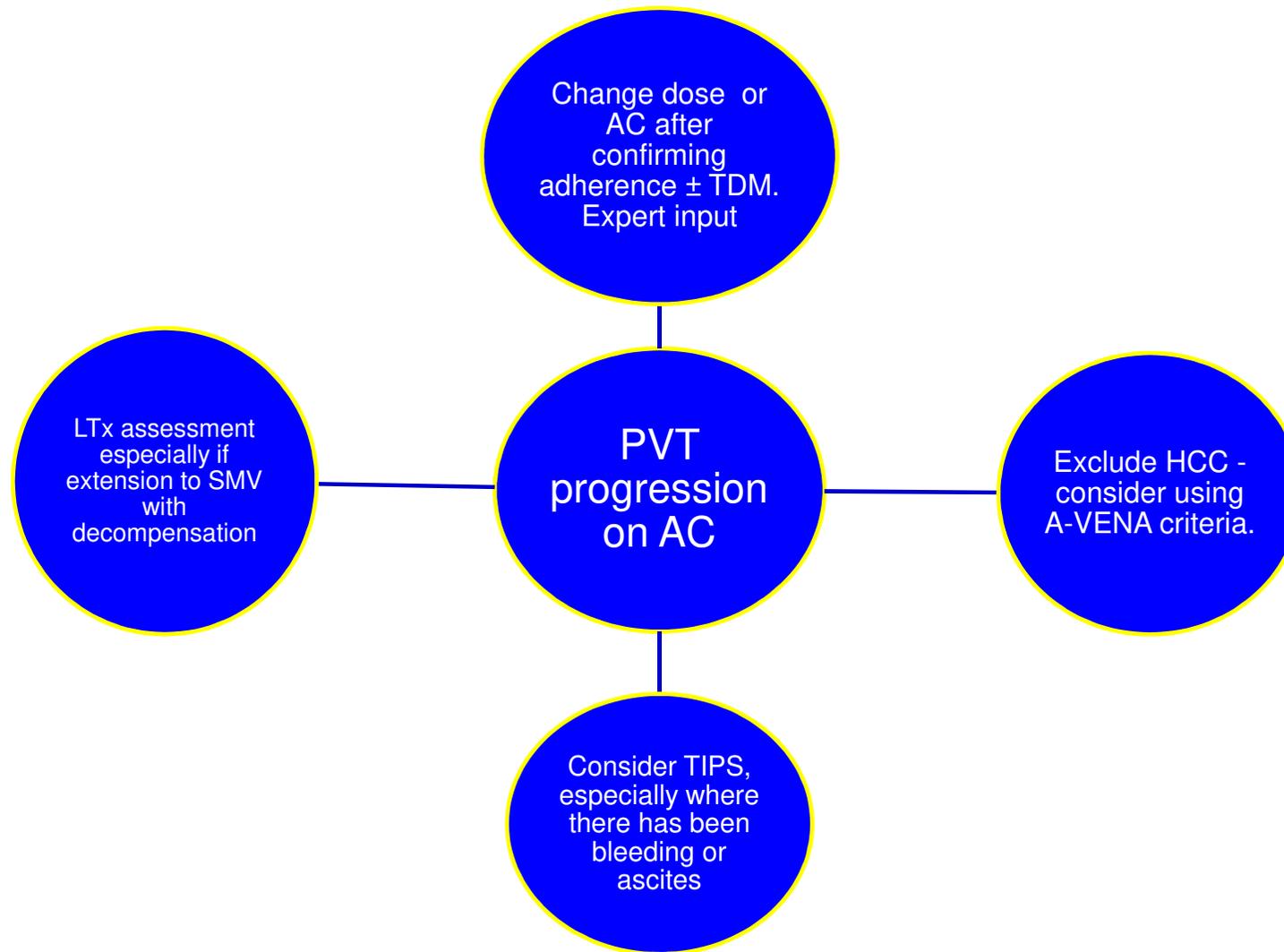
## Decision to anticoagulate with LMWH for 6 months with:

- Regular endoscopic surveillance
- Monitoring bloods esp platelets and seek haematology input as necessary
- Repeat cross sectional imaging in 6/12

## But after 6/12 of LMWH.....



# Progression of thrombosis on anticoagulation



# Approach to anticoagulation

	VKA	DOACs	LMWH
Assess adherence	<ul style="list-style-type: none"><li>• Patient history</li><li>• Time in therapeutic range</li></ul>	<ul style="list-style-type: none"><li>• Patient history</li><li>• Taking as directed<ul style="list-style-type: none"><li>• bd</li><li>• With food for riv</li></ul></li></ul>	<ul style="list-style-type: none"><li>• Patient history</li><li>• Taking as directed<ul style="list-style-type: none"><li>• od vs bd</li></ul></li></ul>
?recent planned interruptions			
Options	<ul style="list-style-type: none"><li>• Address adherence factors</li><li>• ?↑ target INR</li><li>• Switch to LMWH</li></ul>	<ul style="list-style-type: none"><li>• Address adherence</li><li>• ↑dose (if on low dose)</li><li>• Switch to LMWH/VKA</li></ul>	<ul style="list-style-type: none"><li>• Address adherence</li><li>• Empiric ↑dose (bd/20%)</li><li>• Consider oral agent</li></ul>

# Conclusions

## Interventional radiology in cirrhotic PVT

- TIPSS is the main IR therapeutic option in expert centres
- Patient selection is key
- Adjunct anticoagulation is generally recommended
- Catheter induced thrombolysis and thrombectomy requires case by case discussion due to risk of major complications