Ascites Management

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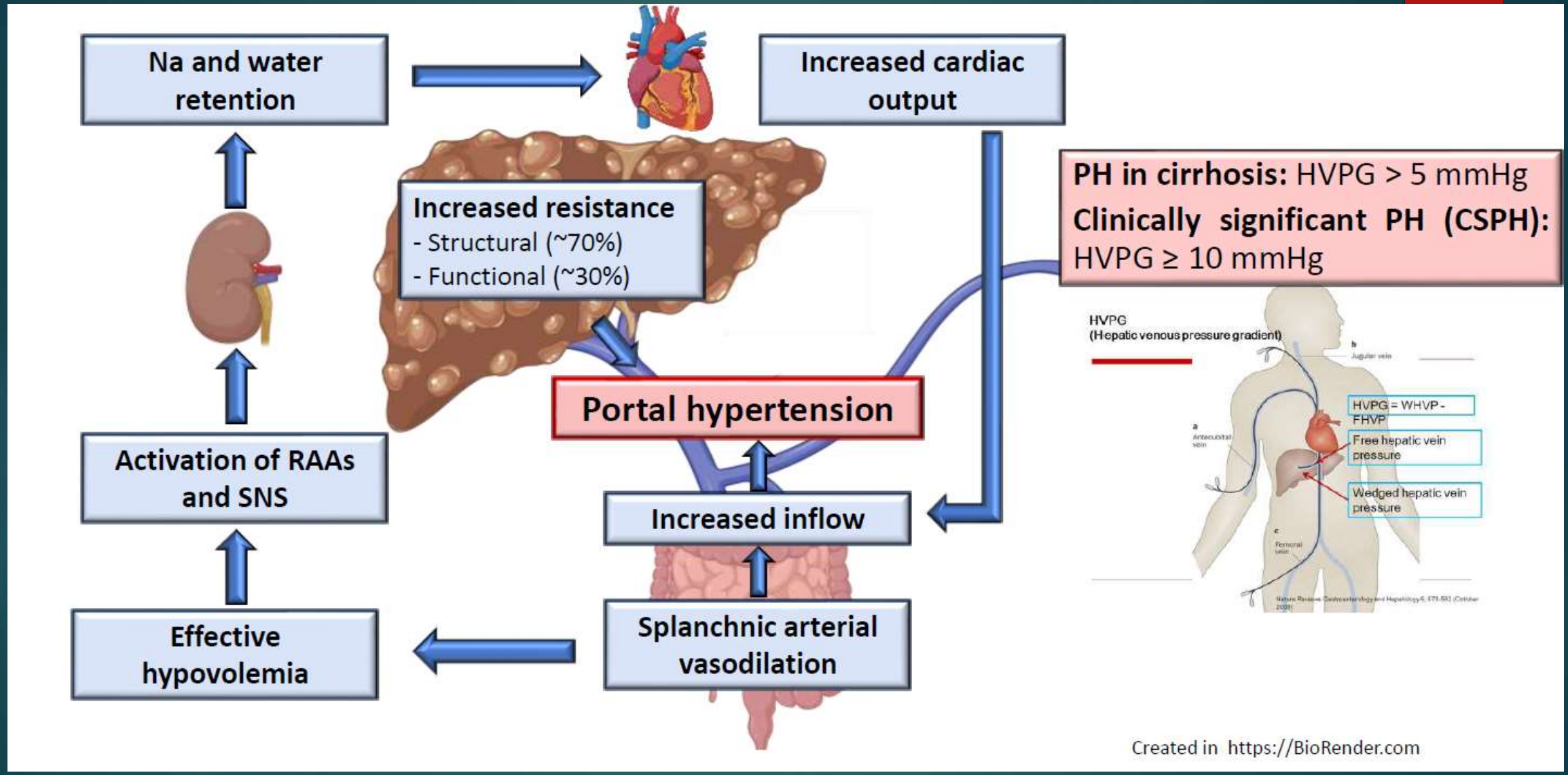
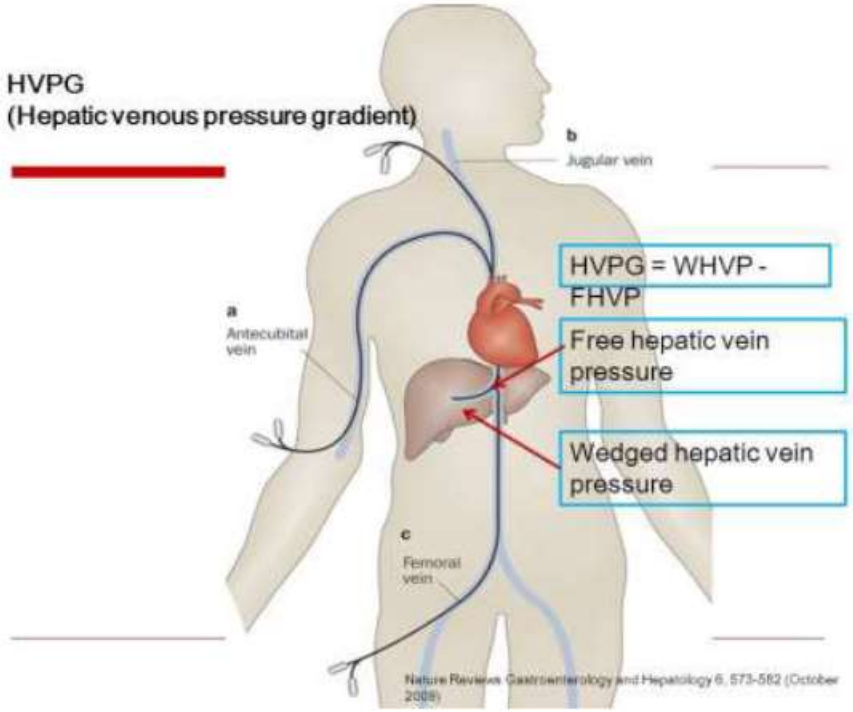
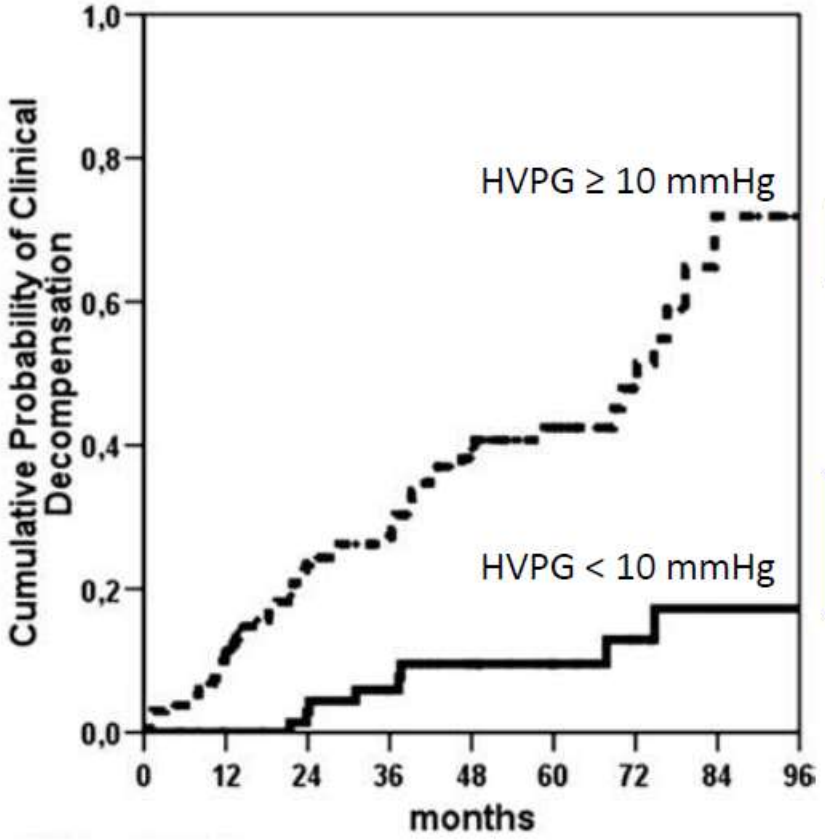
PATHOPHYSIOLOGY OF ASCITES AND PORTAL HYPERTENSION



Incidence of decompensation according to HVPG





HVPG ≥ 10 mmHg

Clinically significant portal hypertension (CSPH)

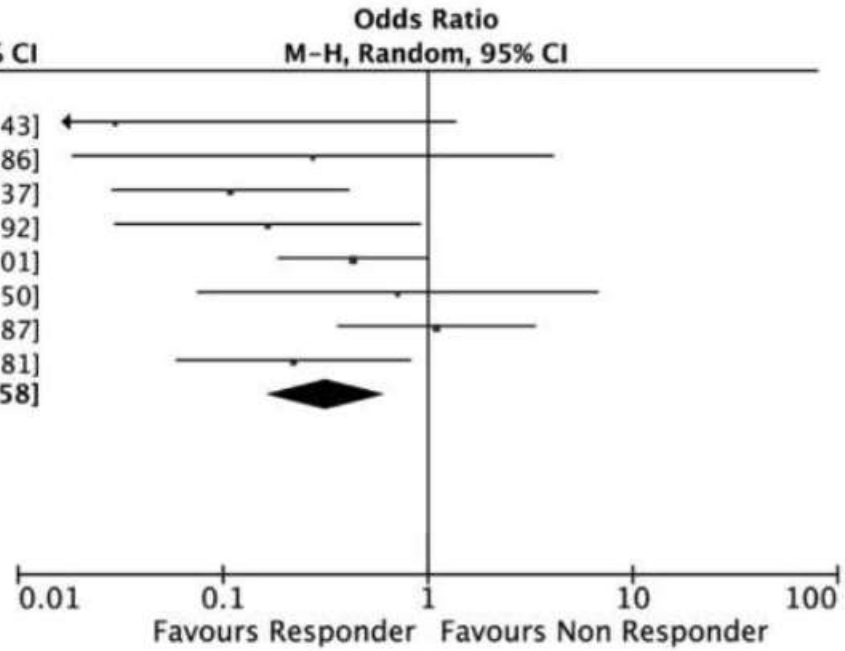
Ripoll C et al. Gastroenterology 2007 ; 133 : 481-488

Reduction of HVPG with NSBBs reduces risk of decompensation

Study or Subgroup	Responder Events	Responder Total	Non Responder Events	Non Responder Total	Weight	Odds Ratio M-H, Random, 95% CI
2.1.1 Primary Prophylaxis						
Bureau, 2002 Hepatology	0	8	1	1	1.2%	0.02 [0.00, 1.43]
Groszmann, 1990 Gastroenterology	0	15	3	28	2.2%	0.24 [0.01, 4.86]
Hernandez-Gea, 2012 Am J Gastr	8	20	24	27	6.8%	0.08 [0.02, 0.37]
Merkel, 2000 Hepatology	2	17	5	10	4.7%	0.13 [0.02, 0.92]
Reiberger, 2013 Gut	18	68	12	25	11.5%	0.39 [0.15, 1.01]
Sharma, 2009 APT	1	12	2	17	3.0%	0.68 [0.05, 8.50]
Turnes, 2006 Am J Gastro	10	16	18	30	8.6%	1.11 [0.32, 3.87]
Villanueva, 2009 Gastroenterology	7	26	8	12	6.9%	0.18 [0.04, 0.81]
Subtotal (95% CI)		**182**		**150**	**45.0%**	**0.28 [0.13, 0.58]**
Total events	46		73			

Heterogeneity: $Tau^2 = 0.34$; $Chi^2 = 10.41$, df = 7 ($P = .17$); $I^2 = 33\%$

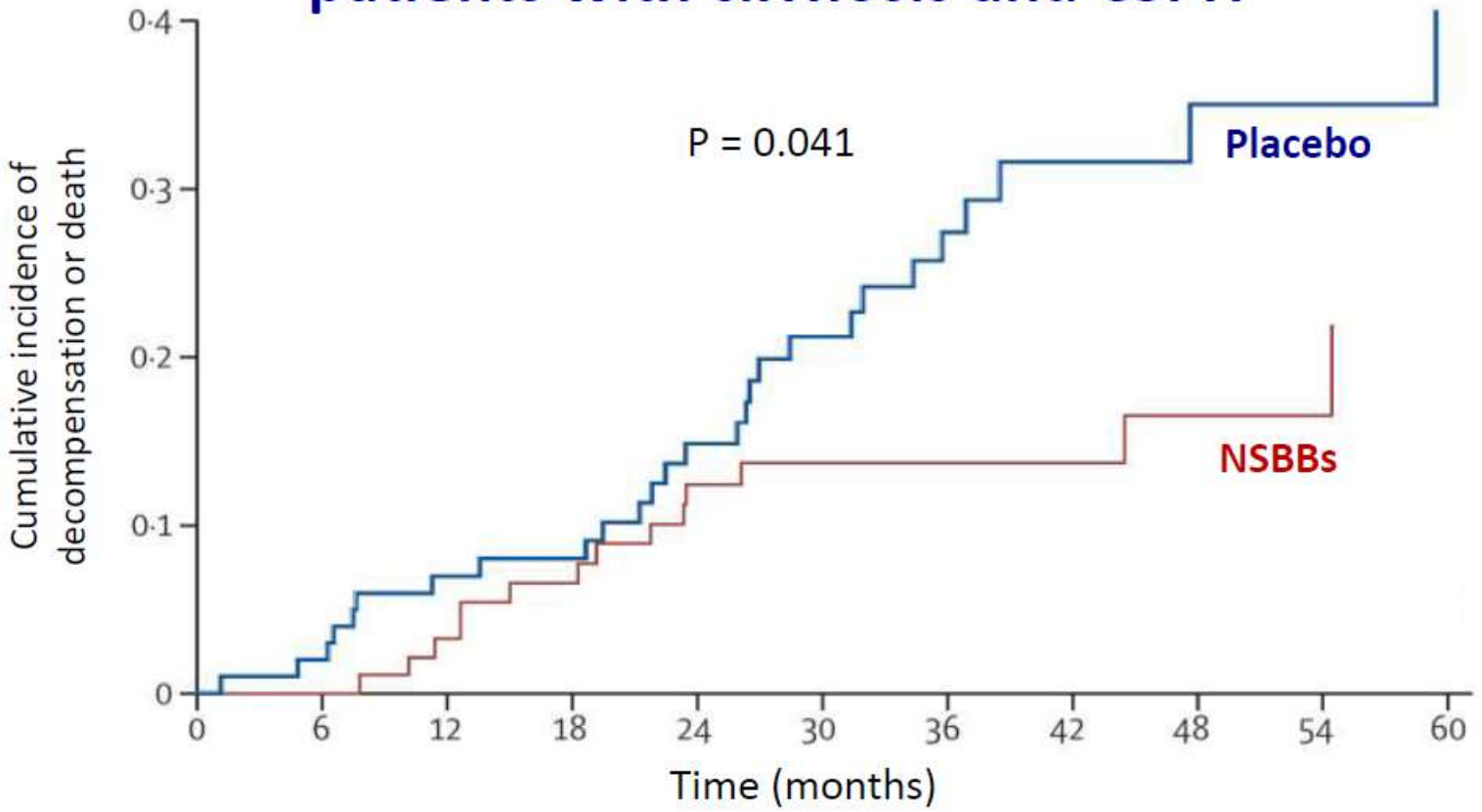
Test for overall effect: Z = 3.40 ($P = .0007$)



Turco L et al. Clin Gastroenterol Hepatol. 2020 ; 18 : 313-327.e6.

NSBB, non-selective beta-blockers.

Non selective beta-blockers vs placebo in patients with cirrhosis and CSPH



Villanueva C et al. Lancet. 2019 ; 393 : 1597-1608

PARACENTESIS MUST COME FIRST TO EVAL FOR ETIOLOGY

Summary of recommendations: management of ascites in cirrhosis

Diagnosis

- It is recommended that patients give informed consent for a therapeutic or diagnostic paracentesis.
- The initial ascitic fluid analysis should include serum ascites-albumin gradient in preference to ascitic protein.
- Ascitic amylase should be measured when there is clinical suspicion of pancreatic disease.
- Ascitic fluid should be inoculated into blood culture bottles at the bedside and examined by microscopy for a neutrophil count.

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

Table 1 Serum ascites-albumin gradient (SA-AG).

SA-AG ⩾11 g/l	SA-AG <11 g/l
Cirrhosis	Malignancy
Cardiac failure	Pancreatitis
Nephrotic syndrome	Tuberculosis

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

Recommendations

- Firstline treatment of ascites should be spironolactone alone, increasing from 100 mg/day to a dose of 400 mg/day.
- If this fails to resolve ascites, frusemide should be added in a dose of up to 160 mg/day, but this should be done with careful biochemical and clinical monitoring.

(Level of evidence: 1a; recommendation: A.)

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

SALT RESTRICTION IS MANDATORY!!!

- Dietary salt restriction can create a negative sodium balance in 10% of patients
- 2000 mg /day (1 tsp)

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

FUROSEMIDE (LASIX) and BUMETANIDE (BUMEX)

Furosemide: loop diuretic

- Low efficacy when used alone in liver disease
- Start at 40 mg and check labs weekly as you increase by 20 mg weekly
- Max is 160 mg/day

- Monitor for electrolyte disturbances and metabolic alkalosis

Bumetadine

- Similar MOA but seems to work better in MASH

AMILORIDE

- Distal tubule diuretic
- Induces 80% of patients at doses of 15-30 mg/day
- Less effective, but alternative to spiro in setting of gynecomastia or breast pain

WATER RESTRICTION

Recommendations

- Serum sodium 126–135 mmol/l, normal serum creatinine. Continue diuretic therapy but observe serum electrolytes. Do not water restrict.
- Serum sodium 121–125 mmol/l, normal serum creatinine. International opinion is to continue diuretic therapy, our opinion is to stop diuretic therapy or adopt a more cautious approach.
- Serum sodium 121–125 mmol/l, serum creatinine elevated (>150 μmol/l or >120 μmol/l and rising). Stop diuretics and give volume expansion.
- Serum sodium ⩽120 mmol/l, stop diuretics. Management of these patients is difficult and controversial. We believe that most patients should undergo volume expansion with colloid (haemaccel, gelofusine, or voluven) or saline. However, avoid increasing serum sodium by >12 mmol/l per 24 hours.

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

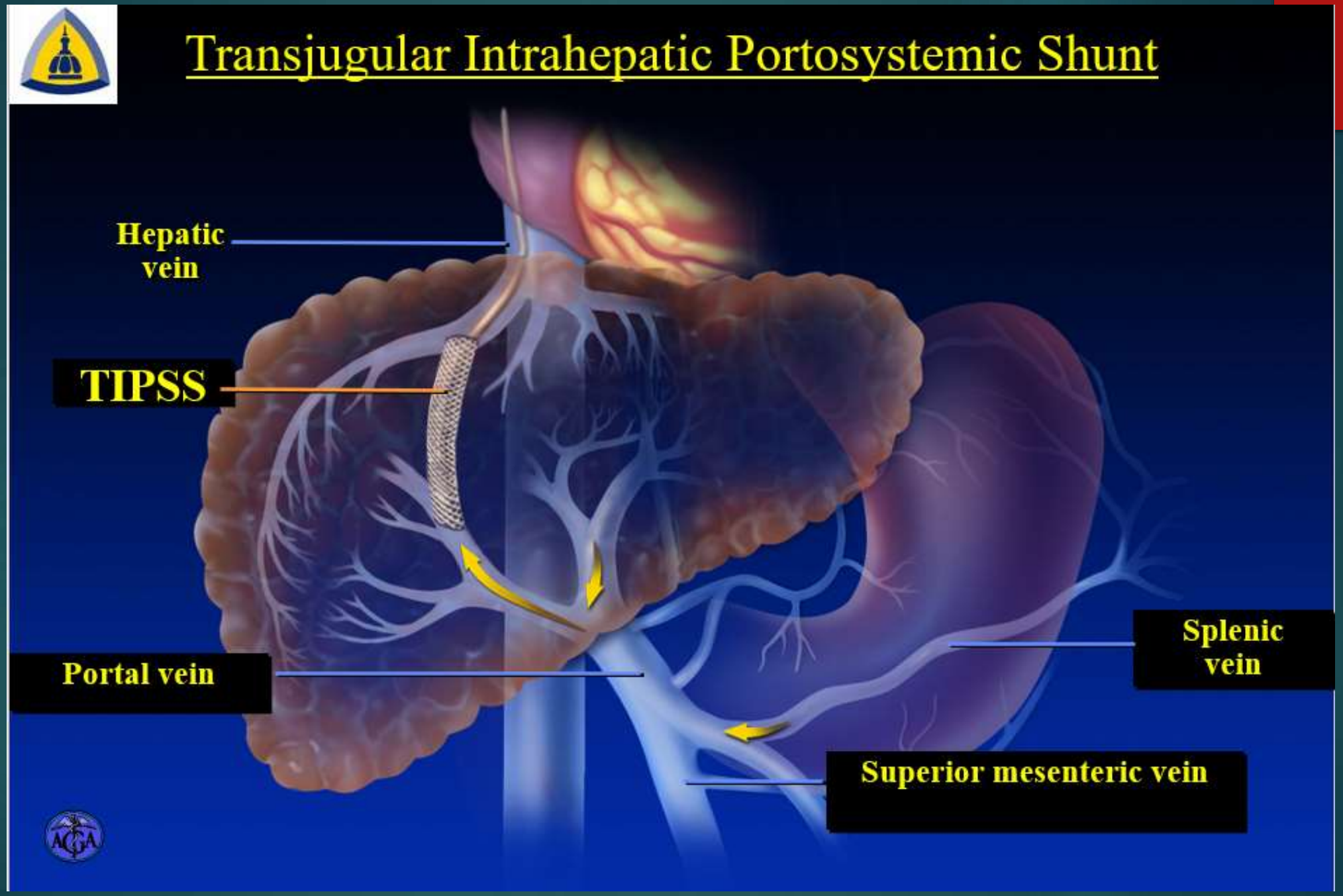
THERAPEUTIC PARA AND LARGE VOLUME PARA

Recommendations

- Therapeutic paracentesis is the firstline treatment for patients with large or refractory ascites. (Level of evidence: 1a; recommendation: A.)
- Paracentesis of <5 litre of uncomplicated ascites should be followed by plasma expansion with a synthetic plasma expander and does *not* require volume expansion with albumin (Level of evidence: 2b; recommendation: B.)
- Large volume paracentesis should be performed in a single session with volume expansion being given once paracentesis is complete, preferably using 8 g albumin/litre of ascites removed (that is, ~100 ml of 20% albumin/3 l ascites). (Level of evidence: 1b; recommendation: A.)

Moore KP, Aithal GP. *Gut*. 2006;55(Suppl 6):vi1-vi12.

Transjugular Intrahepatic Portosystemic Shunt

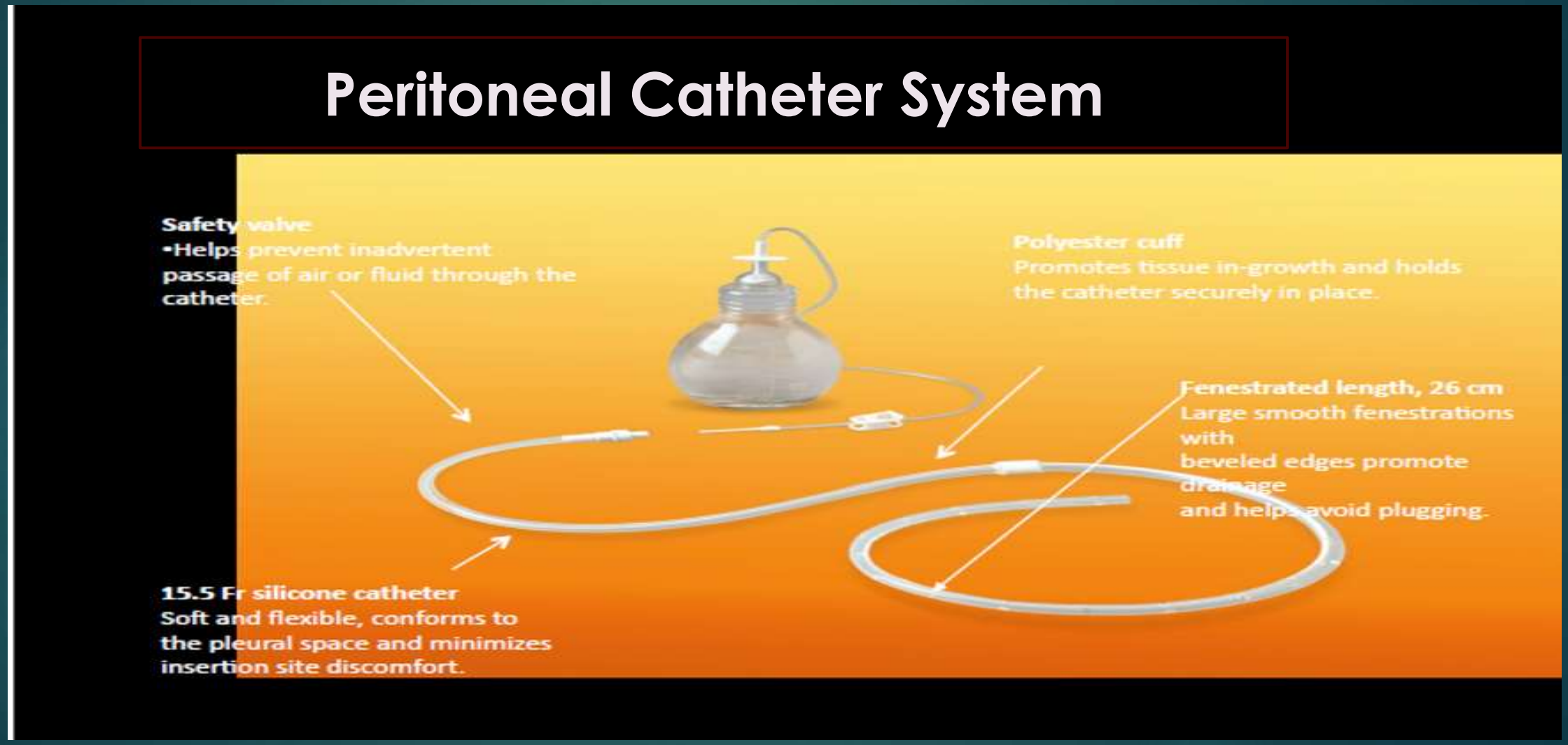


TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT

SIDE to SIDE portocaval shunt placed under local anesthesia
Technical success in 93%
Ascites control in 27-92% with complete resolution in 75%

- 2nd benefit: renin-angiotensin-aldosterone system and increase sodium excretion
- NO EFFECT ON OVERALL SURVIVAL CONSISTENTLY, however does improve nutritional status
- and quality of life
- Hepatic Encephalopathy in about 25% of cases and usually manageable
- (frequent HE prior to TIPS is a relative contraindication)
- MELD >18 also relative contraindication

PERITONEAL DRAIN



PROGNOSIS

- With ascites 50% mortality within 2 years
- If refractory to medical therapy 50% dies within 6 months

THANK YOU