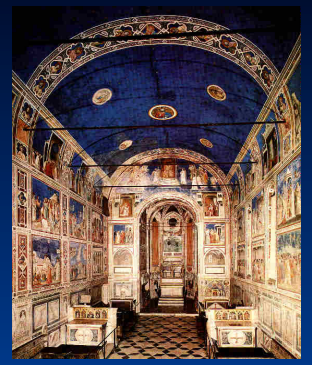

"Sometimes appearance can be deceiving"

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Clinical Case

Admission to emergency department

M.T., male, 58 years old, was admitted to our emergency department for confusion, sleepiness and a progressive deterioration of level of consciousness. An increase in body weight (3 kg) in the last week was reported

Medical History

- Hepatitis C virus related liver cirrhosis diagnosed in 2010 after the development of ascites
- In 2012 two hospitalizations for hepatic encephalopathy
- Esophageal varices grade 2
- Appendectomy in 1979
- Abstinent from alcohol

Clinical Case

Medications

Furosemide	25 mg b.i.d.
Potassium canrenoate	200 mg a day
Rifaximin	200 mg t.i.d.
Lactilol	10 g t.i.d.
Propanolol	20 mg b.i.d.
Lansoprazole	30 mg a day

Clinical Case

Physical Examination

- **Vitals signs:** BP=100/60 mmHg; HR= 84 bpm; RR= 20 breath/min, T=36.8°C.
- **General:** Somnolent but arousable to call, disoriented to time and place
- **Skin:** jaundice
- **Chest:** Lungs clear to auscultation, reduced diaphragmatic excursion
- **Heart:** normal
- **Abdomen**: bulging of the flanks, reduction of bowel sounds, no masses, flank dullness, splenomegaly, no pain during palpation, no rebound tenderness, no Blumberg sign, no Murphy sign
- **Neurological:** pupils normal and reactive to light, diffuse weakness of the limbs without focal signs, asterixis, neck supple to flexion

Clinical case

Laboratory tests

- WBC= 6.77 x 10^9/l (4.4-11)
- Hb= 11.5 g/l (14-17.5)
- PLT= 72 x 10^9/l (150-450)

- Urea = 9.2 mmol/L (2.5-7.5)
- Creat = 129 µmol/L (62-110)
- Na = 130 mmol/L (135-145)
- K = 4.2 mmol/L (3.5-4.5)
- Ca = 2.1 mmol/L (2.1-2.55)

- CRP= 20.7 mg/l (<6)
- Glucose= 6 mmol/L (3.7-5.6)

- INR= 1,67 (0.88-1.13)
- Albumin = 29.4 g/L (35-46)
- Bilirubin = 58,4 µmol/L (1.7-17)
- Ammonia = 104 µmol/L (10-35)
- MELD= 19
- CTP= C12

- pH= 7.37 (7.35-7.45)
- pO2= 84 mmHg (80-100)
- pCO2= 31 mmHg (35-45)
- HCO3= 17.3 (22-26)

Clinical case

CT scan of the brain: normal

Clinical case

Diagnosis in the emergency department

"Hepatic encephalopathy in a patient with decompensated cirrhosis"

Any comments?

He was hospitalized in our Liver Unit for treatment and further diagnostic tests.

He was treated with lactulose given by enema, brain chain aminoacids, rifaximin 400 mg t.i.d.

Diuretics were withdrawn

Clinical case

Hepatic encephalopathy? Yes but…

The Facts:	The Hypotheses:
➢ Hyperammonemia	➢ HE, GI bleeding?
➢ Hyponatremia	➢ Too much diuretics?
➢ Mild renal failure	➢ Prerenal? ATN?
➢ Increased CRP	➢ Infection? ACLF?
➢ Decompensation	➢ Portal vein thrombosis? Infections? GI bleeding?

Clinical Case

First day of hospitalization

Neurological improvement after medical therapy

- **DRE:** normal, no sign of bleeding
- **Urinalysis:** no signs of hematuria, proteinuria and/or leukocyturia
- **Chest X ray:** normal
- **FENa:** 0.2%
- **Abdominal US:** cirrhotic liver, abundant ascites, splenomegaly, portal vein dilated with hepatopetal flow

Clinical Case

Second day of hospitalization (1)

Fever (37.8°C), abdominal pain, olyguria, reduction in blood pressure (92/56 mmHg)

- WBC= 9.65 x 10^9/l (4.4-11)
- Hb= 11.2 g/l (14-17.5)
- PLT= 62 x 10^9/l (150-450)

- Urea = 12.3 mmol/L (2.5-7.5)
- Creat = 197 µmol/L (62-110)
- Na = 129 mmol/L (135-145)
- K = 4.8 mmol/L (3.5-4.5)

- INR= 1,64 (0.88-1.13)
- Bilirubin = 76,3 µmol/L (1.7-17)
- Ammonia = 48 µmol/L (10-35)

- CRP= 51.3 mg/l (<6)
- PCT= 3.5 ng/ml (<0.5)

Clinical Case

Second day of hospitalization (2)

Diagnostic paracentesis:

- SAAG: 19 g/L
- Glucose: 4.8 μmol/L
- LDH: 71 U/L
- PMN: 2.348 el/μL (<250)

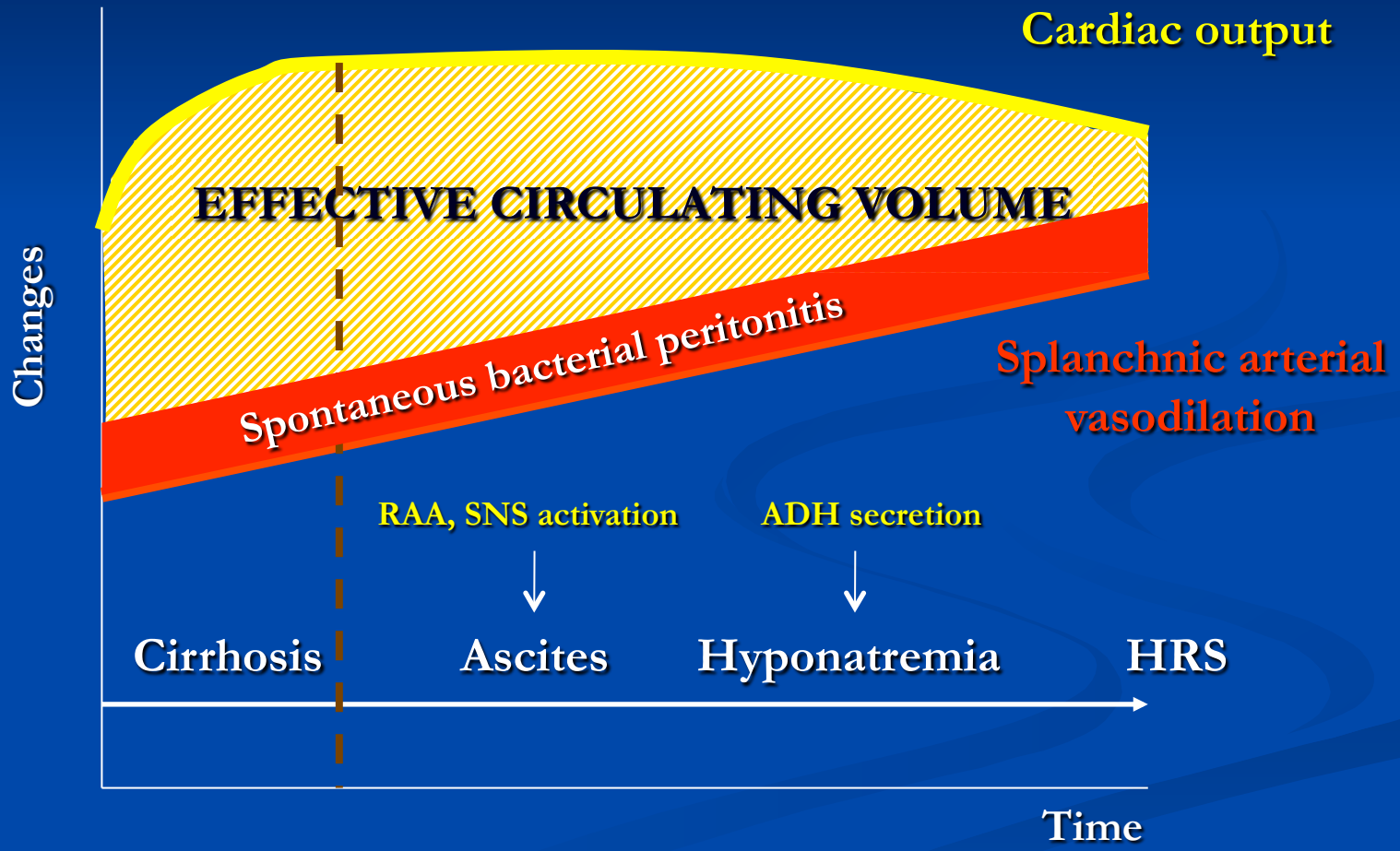
Spontaneous Bacterial Peritonitis

Treatment:

- Cefotaxime 2 g b.i.d.
- Albumin 100 gr e.v. (1.5 g/kg) day 1 and 70 g (1 g/kg) day 2

Clinical Case

Circulatory dysfunction in cirrhosis



V. Arroyo, et. al. J. Hepatol. 2007 ; 46 : 935-946.

Clinical Case

Fourth day of hospitalization

Improvement of clinical conditions, no fever, good diuresis

- WBC= 4.51 x 10^9/l (4.4-11)
- Hb= 11.0 g/l (14-17.5)
- PLT= 67 x 10^9/l (150-450)
- CRP= 21.3 mg/l (<6)
- Urea = 7.8 mmol/L (2.5-7.5)
- Creat = 112 µmol/L (62-110)
- Na = 133 mmol/L (135-145)
- K = 4.1 mmol/L (3.5-4.5)

Large volume paracentesis (6 l):

- PMN: 674 el/µL

Clinical Case

Ninth day of hospitalization

- WBC= 3.71 x 10^9/l (4.4-11)
- Hb= 11.4 g/l (14-17.5)
- PLT= 71 x 10^9/l (150-450)
- CRP= 3.2 mg/l (<6)
- Urea = 6.4 mmol/L (2.5-7.5)
- Creat = 71 µmol/L (62-110)
- Na = 136 mmol/L (135-145)
- K = 4.1 mmol/L (3.5-4.5)

Diagnostic paracentesis:

- PMN: 72 el/µL

Further clinical improvement, cefotaxime was withdrawn, secondary prophylaxis of SBP with norfloxacin was started

The patient was discharged and referred to our liver transplant center

Clinical Case

Take home messages

- Bacterial infections are common in patients with advanced liver cirrhosis
- Spontaneous bacterial peritonitis (SBP) is the second most common infection in these patients
- Clinical presentation of SBP may be subtle
- A diagnostic paracentesis should be performed as soon as possible in all hospitalized patients with cirrhosis and ascites

Clinical Case

Thank you for your attention

Suggested references

- Rimola A et al. J Hepatol 2000; 32: 142-153
- EASL Guidelines. J Hepatol. 2010; 53: 397-417
- Sort P et al N Engl J Med. 1999; 341: 403-409
- Fernández J, et al. J Hepatol. 2012; 56 Suppl 1: S1-12