Guidelines on the Management of Ascites in Cirrhosis

University Hospitals of Leicester NHS Trust

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These guidelines deal specifically with the management of ascites in patients with cirrhosis and are not designed to address the management of the underlying liver disease or the management of ascites from other causes.

They are based on the guidelines for the management of Ascites by the British Society of Gastroenterology(BSG)[1], American Association for the Study of liver disease(AASLD)[2], European Association for the study of the liver (EASL)[3] and the Baveno IV[4] and VI[5] consensus workshop on methodology of diagnosis and therapy in portal hypertension.

Presentation of Ascites

Ascites should be suspected where there is abdominal swelling in the presence of known or suspected liver cirrhosis (risk factors for which include, stigmata of chronic liver disease, radiological or endoscopic evidence of portal hypertension or biochemical / haematological evidence of cirrhosis i.e. low albumin, prolonged INR or thrombocytopenia). Ascites is detected clinically with shifting dullness or by ultrasound. Cirrhosis is commonly associated with peripheral oedema and a right pleural effusion (Hepatic hydrothorax).

Assessment

In all cases an initial assessment of the patient's current fluid status and renal function should be made and regularly performed thereafter.

Fluid status

- Skin turgor, peripheral perfusion
- JVP, BP
- Sacral and peripheral oedema
- Pulmonary oedema
- Third heart sound
- Weight of patient (daily measurement useful)

Renal function

- Urea, creatinine, electrolytes
- Fluid balance, hourly urine output (if renal failure)
- Urine dipstick.

Indications for diagnostic paracentesis (aseptic/local anaesthetic/green needle)

- At first presentation of ascites
- Every subsequent admission to hospital (even if ascites is asymptomatic)
- Alteration of the patient's clinical state such as
    - Sudden increase in ascites (check for portal vein thrombosis)
    - Worsening of hepatic encephalopathy
    - Presence of fever
    - Abdominal pain
    - Worsening renal & liver function
    - G.I bleeding
    - Signs of systemic inflammation i.e. unexplained raising CRP

Microbiological specimens

- Blood
    - 2 sets (four bottles) of blood cultures taken from separate sites (20 ml/set)

- Ascitic fluid
    - 2 x10ml samples in sterile universal bottles
        - White cell count count > 250/mm^3 is diagnostic of spontaneous bacterial peritonitis
        - Serum-ascitic fluid albumin gradient (serum albumin –ascitic albumin) > 11 g/L is suggestive of cirrhotic, rather than malignant, ascites
    - 10mls inoculated into each bottle of an aerobic and anaerobic blood culture set.
    - Out of Hours samples (after midnight)
        - Ascitic fluid should be tested on the ward using urine dipsticks.[6]
        - Any degree of positivity for leukocytes should be considered to indicate the possibility of SBP and the patients treated empirically. (see microbiology guidelines)
        - A negative dipstick has a high negative predictive value for SBP. No antibiotics unless unwell with other signs of sepsis.

Management of Ascites in Cirrhotic patients

Salt restriction

All patients with ascites and oedema have a high total body sodium=>

- Dietary salt should be restricted to a no-added salt (NAS) diet of 90 mmol salt/day (5.2 g salt/day). Avoid, crisps, cheese, cheese biscuits, soup and bread.
- LoSalt should be avoided as an alternative as this is high in K^+

Large volume paracentesis(>5 litres)[7]

- Please refer to the UHL Abdominal Paracentesis Standard Operating Procedure (LocSSIPs)

Drug therapy to prevent recurrence of ascites after paracentesis or treating asymptomatic ascites.

- 1st line spironolactone alone, increasing from 100 mg to 200 mg if no response after 4 days.
- If unsuccessful frusemide 40 mg can be added,
- If unsuccessful spironolactone increased to 300mg then 400mg before increasing frusemide to 80mg.
- Careful biochemical and clinical monitoring is required particularly with higher doses.
- Amiloride is can be used if gynaecomastia becomes a problem with spironolactone, but it is less effective.
- Daily weight to assess response.
- Remember compliance maybe a problem prior to admission and on discharge.

Propranolol & Carvedilol (prescribed of varices prophylaxis or other indication) in patients with refractory ascites[5]

- Propranolol & Carvedilol dose should be reduced/discontinued if a patient with refractory ascites develops any of the following events:
    - Systolic blood pressure <100mmHg
    - Hyponatraemia <130
    - AKI

Hyponatraemia[1]

- 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.
    - Stop diuretic therapy.
    - Water restrict if euvolaemic.
- Serum sodium 121–125 mmol/l, serum creatinine elevated (>150 µmol/l or >120 µmol/l and rising).
    - Stop diuretics
    - Volume expansion (Human Albumin Solution (HAS) 4.5% or Volpex)
- Serum sodium <120 mmol/l,
    - Stop diuretics.
    - Volume expansion with HAS 4.5% or Volpex or saline.
    - However, avoid increasing serum sodium by >12 mmol/l per 24 hours.

Treatment of Spontaneous Bacterial Peritonitis (SBP)[8]

- 1st line: Co-amoxiclav intravenous 1.2g every 8-hours for 5 days
- 2nd line (penicillin allergy): Ciprofloxacin intravenous 400 mg every 12-hours for 5 days
- After 24-48 hours, once patient is clinically improving and eating and drinking, switch to equivalent oral antibiotic therapy to complete 5-day course
    - Oral co-amoxiclav 625 mg every 8-hours
    - Oral ciprofloxacin 500 mg every 12-hours

- Patients with SBP and signs of developing renal impairment should be given albumin at 1.5 g albumin/ kg (~5 bottles of 500mls 4.5% HAS) in the first six hours followed by 1 g/kg on day 3. Consider CVP monitoring and transfer to HDU environment.
- Review microbiology results and adjust therapy as necessary
- Start secondary prophylaxis on resolution of the first acute episode.

Primary Prophylaxis (ascites but no previous SBP)[9]

- Only indicated with protein levels in ascitic fluid <15g/L
  AND Creatinine >120 µmol/L; Urea >9 mmo/L
  OR Sodium < 130mmol/L
  OR Severe liver failure defined as Child-Pugh score = 9 points with a serum bilirubin level > 50µmol/L.
- Annual risk of SBP in this group is 61% (v 7% with antibiotic primary prophylaxis).
- 1st line: Oral Co-trimoxazole 960 mg once daily on five days per week (Mon-Fri) long term.
  - Can increase serum potassium, **special caution should be noted for patients also on potassium sparing agents such as spironolactone and ACE inhibitors**,
  - Monitor serum potassium levels twice weekly for the first two weeks then once weekly for a further two weeks.
- 2nd line (If co-trimoxazole allergy, not tolerated, or causes hyperkalaemia): Oral Ciprofloxacin 250 mg once daily

Secondary Prophylaxis (previous episode of SBP)[1]

- As for primary prophylaxis
- Consider for referral for liver transplant as 2-year survival is <50%.

References

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