Hepatorenal syndrome

Introduction

Represents a spectrum of renal dysfunction in setting of cirrhosis (or alcoholic hepatitis) with portal hypertension and is caused by vasoconstriction of large and small renal arteries, so reducing renal perfusion.

Presentation

- Signs of sev. liver disease (ascites, jaundice, bleeding disorders, malnutrition, stigmata)
- Renal failure (oligouria or just increasing serum creatinine levels).
- Salt and water retention with increased ascites and peripheral oedema
- Hyponatraemia universal (dilutional), hyperkalaemia is common

Diagnosis

This is made after excluding other causes of ARF in patients with liver failure:
Diagnostic criteria are:

- Creatinine clearance <40 mL/min or serum creatinine >1.5 mg/dL.
- Urine volume <500 mL per day.
- Urine sodium <10 mEq/L.
- Urine osmolality is greater than plasma osmolality.

Management

- *Type 1* - Severe renal failure - doubling of Cr to >221 μmol/l in <2 weeks. Very low GFR (<20 mL/min) and very poor prognosis.
    - Admit to hospital, restrict fluid and monitor UECs, treat any precip infections
    - Start vasoconstrictors and IV **albumin**. Renal replacement therapy.
    - Surgery: Transjugular porto-hepatic shunts (TIPS) may be considered
    - Liver transplantation best option.
- *Type 2* - More gradual and more moderate renal failure, with resistant ascites.
    - Usually treated as outpatient. Restrict dietary sodium. ABx if req.
    - Careful diuretic use.
    - Repeated paracentesis may be necessary for gross ascites.
    - Transjugular porto-hepatic shunts although may not be associated with ↑survival.
    - Consider vasocontrictors (**terlipressin**) or liver transplantation.

Complications

- Life threatening bacterial infections (septicaemia, SPB, pneumonia).
- Histological changes in the kidneys are minimal and renal function usually recovers well after liver transplantation.

Prevention

- Nephrotoxic drugs, including **aminoglycosides** & **NSAIDs**, should be avoided in patients with cirrhosis.
- Early hepatorenal syndrome may be treated by aggressive expansion of intravascular volume with **albumin** and **FFP** and avoidance of diuretics.
- It may be possible to reduce the incidence of HRS in patients with SBP by administering IV **albumin**; and in patients with alcoholic cirrhosis by giving **pentoxifylline** (needs confirmation in larger trial).