

You are the pharmacist visiting the hepatology unit and review the following patients medical notes:

Patient:	EJ	
Hospital number:	998045	
DoB:	15/10/1961	
Gender:	F	
Address:	7 School Road, Flatplace	
Day 1:	Brought in this morning by flatmate due to confusion and disorientation.	
PC:	Alcohol intoxication	
HPC:	Patient been on a 4 day alcohol binge. Housemate reports approximately 30 units/day (500mL spirits and bottle of wine).	
PMH:	Chronic alcoholic liver disease – cirrhosis	
DH:	Spironolactone 25mg OD Propranolol 40mg BD Lactulose 35mL TDS	
SH:	Lives in a shared house with housemate. Currently between jobs. Chronic alcohol use over the past 16 years. Poor oral intake over the past few months. Lacking appetite and early satiety.	
Alcohol	Spirits, strong cider and wine Approximately 50 units/week and binges	
Smoking Status	Non-smoker	
OE	BP	148/88
	Temp	37.5 °C
	Pulse	86 bpm
	Weight	83Kg (recently increased by 4Kg)
	Lungs	NAD
	Confused, agitated and disorientated to place and time. Hepatic flap present. Distended abdomen. Endoscopy – indicates swollen veins and collateral circulation of the oesophagus and abdomen. Portal hypertension. Yellowing of the skin and sclera. Spider naevi of the chest and face. Swollen ankles.	
Investigations:	PT: 20 (Ref: 10-15 sec)	Bilirubin: 180 (Ref: 0-17mmol/L)
	Hb: 13.7 (14 – 18 g/dl)	Albumin: 28 (Ref: 35-50g/dL)
	Urea: 7.9 (Ref: 2.5-7.8mmol/L)	Total protein: 58 (60 – 8-g/dL)
	Cr: 138	GGT: 169 (Ref: 5-45IU/L)

	Viral screen: NAD	ALP: 96 (Ref: 20-100IU/L)
	K+: 4.7 (3.6 – 5.0 mmol/L)	ALT: 93 (Ref: 5-30IU/L)
	Na: 139 (134 – 145 mmol/L)	AST: 197 (Ref: 5-40IU/L)
Diagnosis:	Acute alcohol withdrawal	
Plan:	Admit and initiate acute alcohol withdrawal protocol Start: Dalteparin 5000 units OD Chlordiazepoxide fixed-dose reducing schedule – starting with 40mg QDS, reduced over 10 days. PRN chlordiazepoxide (maximum of 200mg dose in 24 hours) Prescribe regular medication	
	Dr T Pleutis	

- a) With reference to the medical notes, test results and drug chart, critique patient EJ's treatment. Describe and explain any pharmaceutical care issues identified and describe how they should be managed.

Answer:

Pre-admission –

Spironolactone is the drug of choice for the treatment of ascities and peripheral oedema. It will gradually increase abdominal fluid mobilisation by increasing renal excretion of sodium and fluid– it is an aldosterone antagonist and is potassium sparing (renin-angio-aldosterone increased due to central hypoalbuminaemia, and aldosterone metabolism decreased due to reduce liver metabolism). *Starting dose usually 100mg and increased up to 600mg (unlicensed), dose patient on is too low to be effective. Weight increased, potentially due to ascities, dose should be increased to 100mg OD (Na and K in range) – monitor patient (abdominal girth, weight 1kg/day reduction – increase dose after 2-3 days if action not seen; Na, K).*

Propranolol appropriate dose, route and frequency for portal hypertension to reduce the risk of oesophageal bleeds. *Dose can be increased if required, HR and BP high.*

Lactulose – dose and frequency appropriate for the management of hepatic encephalopathy. Increases gut transit, ionises nitrogenous products preventing absorption and reduces ammonia forming bacteria. Check patients stool chart, should be aiming for 2-3 soft stools/day without diarrhoea (risk of precipitating/worsening encephalopathy).

History (alcohol usage, chronic liver disease (cirrhosis), ast:alt >2, inc GGT, decreased PT, alb and total protein, increased bili), indicate withdrawal likely. Withdrawal symptoms (confusion, disorientation, aggression) present. Indicate treatment required.

Inpatient medication

Chlordiazepoxide appropriate for withdrawal – signs expected within 6 hours and potential to last 5-7 days. Patients history implies a high level of dependence therefore patient likely to have withdrawal. Signs already present – disorientation, agitation, confusion, increased temperature and HR. Would want to treat asap to prevent progression. *Benzodiazepine with a long half life less likely to cause withdrawal, but risk of accumulation – consider titrated doses (CIWA) rather than fixed regime and close monitoring of the patient. Oxazepam has a shorter half life and therefore has reduced risk of accumulation in elderly and those with significant liver damage.*

Dalteparin not appropriate due to patients already increased risk of bleeding, increased PT (due to inability of the liver to synthesise clotting factors). Stop dalteparin.

IV phytomenadione may be tried to improve PT, but due to significant liver damage it is unlikely to be effective as the liver has diminished synthetic capacity.

Spirolactone, propranolol and lactulose see comments above.

Missing Wernicke's encephalopathy treatment. Unclear if the confusion experienced by the patient is related to this, but due to the patients malnutrition, risk is increased. Recommend parbinex IV 2 pairs TDs for 5 days. Patient should also receive Po thiamine 100mg TDS as prophylaxis.

Referral to DALN required to support abstinence.

Frequent clinical assessment to monitor for signs of withdrawal and deterioration in encephalopathy or Wernicke's.

Ensure adequate nutrition – refer to dietician.

Ensure adequate fluid balance preventing dehydration and electrolyte abnormalities that can precipitate hepatic encephalopathy.

Recommend moderate limitation of sodium intake will help with fluid retention – review drugs which may contain high sodium content.