3) Fulminant Hepatic Failure – Dr. Muhammad Omar

FHF is defined as sever hepatic failure with enthephalopathy developing in a patient with a previously normal liver. When it occurs after 4 wk but Less than 6 months it call late –onset hepatic failure (Sub acute).

Classification of acute liver failure

Type	Time: jaundice to encephalopathy	Cerebral edema	Common causes
Hyper acute	< 7 days	Common	Viral, paracetamol
Acute	8-28 days	Common	Cryptogenic, drugs
Subacute	29 days-12 weeks	Uncommon	Cryptogenic, drugs

The causes vary throughout the world, the majority is due to viral hepatitis (60-70 %), but paracetol overdose is common in the U.K (50%).Hep. A, B, D, E, Paracetol and Halothane usually Cause FHF. While Hep. C, other drugs .cause sub-acute. 25% of FHF are drug induced.

Rare causes; Wilson disease, Auto immune CAH, Budd- chiari synd, acute fatty liver of pregnancy.

Histologicaly there is massive necrosis of the whole liver lobule.

Clinical feature

Examination shows a Jaundice patient with the sign of hepatic encephalopathy developing within 2 wks. The condition called sub Fulminant if the encephalopathy developing 2- 8 wks. The mental state varies from slight drowsiness, confusion to coma with convulsion. Fetor hepaticus is common, but sign of chronic liver disease usually small. Fever, vomiting, hypertension, & hypoglycemia occur, spasticity & extension of the arm & leg. Cerebral edema found in 80% of patient who die.

Clinical assessment

- Toxicology screen of blood and urine
- IgM anti-HBc
- IgM anti-HAV
- Anti-HEV, HCV, cytomegalovirus, herpes simplex, Epstein-Barr virus
- Ceruloplasmin, serum copper, urinary copper, slit-lamp eye examination
- Autoantibodies: ANF, ASMA, LKM
- Immunoglobulins
- Ultrasound of liver and Doppler of hepatic veins

Complication: 1/ Bact infect. 2/ hypotension. 3/ G.I bleeding. 4/ Resp arrest. 5/ renal failure (hepato renal syndrome). 6/ pancreatitis. 7/Increase ICP. 8/ Hypoglycemia. 9/Lactic acidosis.

Investigation: as for acute liver disease, P.T is the most useful index of severity & when very high indicates a poor prognosis. AST is high initially & it fall. With progressive liver damage, the S. albumin falls.

Treatment

- There is no specific treatment, patient should be managed in intensive cares unite;
- Supportive therapy as for hepatic encephalopathy is necessary.
- Head elevation (15-20 degree). CVP monitor.
- Cerebral edema is the major cause of death & treatment with 20% mannitol 1gm/ kg i.v.,Hyperventilation, Dexamethasone is no value.
- Identify & remove any ppt factor like drug with cerebral depressant properties.
- Hypoglycemia & hypokalemia should be corrected with 10% glucose + K + Ca. regular monitoring.
- Coagulopathy treated with i.v vit. K, platelet, FFP.
- H_2 antagonist (PPI) to prevent G.I bleeding.
- Infect should be treated with suitable Antibiotics.80% develop infection (80% bacterial, 20% fungal).
- Paracetol induced FHF should be treated with N-acetylcysteine even after 10 (but < 36) hours.
- Flumazenil; a benzodiazepine receptor antagonist may give a transient improve of encephalopathy.
- Restriction of protein in takes with adequate calorie.
- Sterilization of bowel.
    a) Mech. Sterilization: by purgation (oral & enema) using lactulose 10- 30 ml 3*/d is an osmotic purgative, reduce colonic PH & limit ammonia absorption. Also stimulate bacterial fixation of ammonia.
    b) Bacteriological sterilization: using broad spectrum- non-absorbable AB e.g./ Neomycin 1gm/ 6hr. Metronidazole 200mg 3*/ d also effective.
- Antibiotics, and Anti-fungal drugs.
- Arterio venous hemofiltaration for uncorrected acidosis, fluid over load, hyperkalemia, renal failure.
- ICP monitoring in stage III or IV encephalopathy. (Keep between 15-20 mm Hg). By using epidural transducers.
- Liver transplantation has been a major advance for patient with FHF. (1 year survival 80-90%).
- ? Trial of PGE1…
- Steroids; No benefit.

Course & Prognosis

Poor prognostic parameter in Non – acetaminophen FHF includes:

A. PT > 100 sec. or
B. Three of the following;
    1. Etiology (HCV & drug).
    2. Age (< 10 yr. & > 40 yr.).
    3. Interval from onset of J. to encephalopathy less than 7 days
    4. S. blirubin > 18 mg/ dl.
    5. PT > 50 sec.(INR.>3.5).or
C. Factor V level less 15% and encephalopathy grade 3 or 4.

Poor prognosis in Acetamenophen –induced FHF:

A. Arterial PH <7.3 or
B. PT >100s.plus S.Creatinine >3.4mg /dl.plus, Stage III or IV encephalopathy.

The overall mortality rate of FHF without Liver transplant is about 70-80 %. Pt who survive without transplantation have excellent prognosis.