The Liver 2 - Dr. Mzhda

Signs of impaired liver function

- It depend on the severity and whether it is acute or chronic

Acute liver failure

- Due to:
  1. Viral hepatitis
  2. Drug reactions, halothane, INH, NSAIDs
  3. Paracetamol overdose
  4. Mushroom poisoning
  5. Shock and multi organ failure (MOF)
  6. Acute Budd-Chiari Syndrome
  7. Wilsons disease
  8. Fatty liver of pregnancy

- In the early stages there is no objective signs unless become sever one which cause the following:
  - Jaundice
  - Neurological signs (liver flap, drowsiness, confusion even coma)
  - 50% mortality even with treatment

- Treatment:
  - Usually is supportive include:
    - IVF
    - TPN
    - Antibiotic
    - Renal support with haemofiltration
    - Sedation
    - Ventilation support in coma
    - Mannitol to decrease brain edema
  - Liver transplantation? This depend on Kings college criteria

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**King’s College Criteria for Orthotopic Liver Transplantation (OLT) in Acute Liver Failure**

**Paracetamol induced:**
- pH < 7.30 (irrespective of grade of encephalopathy)
- Prothrombin time (PT) > 100 seconds + serum creatinine > 300µmol/l (with grade 3 or 4 encephalopathy)

**Nonparacetamol induced (any three of the following):**
- Age less than 10 years or more than 40 years
- Etiology nonA, nonB, halothane or idiosyncratic drug reaction
- More than 7 days' jaundice before encephalopathy
- PT > 50 seconds
- Bilirubin < 300 µmol/liter
Chronic liver disease

- Causes lethargy, weakness, later on jaundice
- It is progressive deterioration in liver function associated with the hyper dynamic circulation, involving high cardiac output, large pulse volume, low blood pressure, flushed warm extremities
- Fever
- Skin changes as spider naevi, palmer erythema, white nails (leukonychia)
- Endocrine abnormalities as hypogonadism, gynaecomastia
- Hepatic encephalopathy, memory impairment, confusion, personality changes, altered sleep patterns, slow slurred speech, flapping tremor
- Abdominal distension, ascites, fluid thrill, shifting dullness.
- Protein catabolism, muscle wasting, decrease bulk of the muscle
- Coagulation defect as skin bruising
- Its severity depends on Child’s criteria:

<table>
<thead>
<tr>
<th>Child’s Classification of Hepatocellular Function in Cirrhosis</th>
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<tbody>
<tr>
<td><strong>Group designation</strong></td>
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<tr>
<td>Bilirubin (mg/dL)</td>
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<tr>
<td>Albumin (g/dL)</td>
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<tr>
<td>Ascites</td>
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<tr>
<td>Neurological disorder</td>
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<td>Nutrition</td>
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Liver infections:

- Viral hepatitis, A,B,C,D,E

1-Hepatitis A
- Feco-oral route
- Spread in close communities
- Cause generalized weakness, malaise, jaundice, tender, hepatomegaly
- Diagnosis by ab to A type
- Self-resolving but may cause fulminate liver failure
- When resolve, liver recover fully and no functional deficit, has no long term sequelae
- Supportive treatment

2-Hepatitis B
- Serious condition
- Can produce acute self-resolving or long term sequel as liver cirrhosis and primary liver cancer
- Acutely cause malaise, anorexia, abdominal pain, jaundice
- Late stage liver cirrhosis complications (ascites, variceal bleeding)
- Diagnosis by ab to B type
- Treatment is supportive

3-Hepatitis C
- Common cause of chronic liver disease
- 1% of the blood donors are positive
- Due to blood transfusion
- Clinical features may be:
  - Acute or hidden causes liver cirrhosis and portal
  - Hypertension
- LFT are abnormal, encephalopathy, ascites, bleeding
- Treatment is by liver transplantation

Ascending cholangitis
- Associated with obstructive jaundice
- Jaundice, rigor, upper abdominal pain (Charots triad).
- On examination of abdomen tender hepatomegaly
- Sonography shows dilated biliary tree
- Increase LFT enzymes
- Culture and sensitivity test positive
- Treatment
  - AB
  - IVF
  - To drain bile duct do endoscopy to remove the stones and do sphincterotomy or via PTC
Pyogenic liver abscess

- **Etiology:**
  1. Biliary drainage impairment due to stones ...cholangitis
  2. Hematogenous as in IV drugs, teeth cleansing, SABE, Crohn's disease, diverticulitis, infected indwelling catheter
  3. Immunosuppressed patients as in cancer pt., AIDS, chemotherapy, transplant patients.
     - But majority is unexplained
     - gm –ve & gm +ve m.o.
     - Increase incidence in elderly and diabetic patients
     - More in right lobe of the liver, may be single or multiple

- **Clinical features:** fever, anorexia, chills, malaise, and right hypochondrial pain.

- **Investigations:**
  - Increase WBC & alk.phosphatase, elevated ESR
  - Sonography shows multi-located cystic mass, confirm by aspiration
  - Atypical clinical features and radiology finding suspect the possibility of the necrotic cancer

- **Treatment:**
  - Correct underlying cause
  - AB
  - IVF
  - Aspiration
  - Open or laparoscopic drainage
  - Or anatomical liver segment resection if severely damaged

Amebic liver abscess

- Subtropical climate, poor sanitation
- Feco-oral route (cyst to GIT, specially colon form Flask shaped ulcers then to portal vein ...liver)
- Entamoeba histolytica, Single or multiple abscess, anchovy or chocolate color
- **Clinical features:** cause upper abdominal pain, fever, hepatomegaly
- **Diagnosis:** Depend on stool examination, Sonography of the liver, Fluroescent Ab to E.H. is +ve
- **Treatment:** by metronidazole or if not responding to medical treatment aspiration or drainage

Ascariasis

- Common in far east and India
- Ova of Ascaris lumbricoides via bile duct reach the liver, obstruct bile duct causing cholangitis
- Ascaris nucleus for intra-hepatic biliary stone formation
- **Clinical features:** cholangitis, pancreatitis, biliary stone, hepatic abscess
- **Diagnosis:** sonography, CT – Abdomen, ERCP(linear filling defect in bile ducts)
- **Treatment:** piperazin, mebendazol, ERCP to extract the worms if failed do surgery

Carolis disease

- Congenital dilatation of the biliary tree, may be segmental
- Increase incidence of the lithiasis, cholangitis, abscess of liver, choangiocarcinoma (7%)
- Complications biliary sepsis and carcinoma
- **Clinical features:** abdominal pain, fever, chills, biliary sepsis which is life threatening
- **Diagnosis:** sonography, CT–Abdomen, ERCP, MRI shows lakes, stones
- **Treatment:**
  - Acute infection episodes by antibiotics
  - Obstruction and sepsis of biliary tract is by drainage via ERCP, PTC.
  - Malignant may be amenable to resection
  - Segment involved resection
  - Liver transplantation if liver functions is good
Primary biliary cirrhosis

- In female more
- Has hidden presentation
- Cause generalized weakness, malaise, lethargy, jaundice, abnormal LFT
- Diagnosis: circulating anti smooth muscle antibodies, liver biopsy
- Treatment: liver transplantation

Primary sclerosing cholangitis (PSC)

- Involve intrahepatic & extrahepatic biliary tree fibrosis & obliteration, progress to cholestasis, liver failure & death.
- May be genetic ,associated with ulcerative colitis
- In young adults
- Jaundice is rarely the first presentation
- Predispose to cholangiocarcinoma
- Has nonspecific symptoms
- Diagnosis: cholangiography, liver biopsy shows fibrous obliteration of the biliary tract, bile tree brush cytology if you suspect cholangiocarcinoma
- Treatment: if jaundice do stenting, liver transplantation is the only useful treatment

Budd-Chiari Syndrome

- Young female mostly, 1: 100 000
- Etiology:
  1. Primarily due to endothelial thrombosis causes hepatic veins thrombosis
  2. Secondarily due to compression on hepatic veins by tumor outside, or invasion
     - It causes liver congestion, impair liver function, portal hypertension, ascites, oesophageal varices or it may progress to fulminate liver failure
     - There is precoagulant state, deficiency in prothrombin 3, protein C, protein S and factor 5 leiden which is present during pregnancy and in pil users
     - Myeloproliferative disorders as in polycythemia rubra and thrombocythemia
- Clinical features: abdominal discomfort, ascites, hepatomegaly, if chronic cause cirrhosis
- Diagnosis:
  - Sonography: no hepatic vein flow
  - Liver biopsy: centrilobular fibrosis
  - Hepatic venography: no flow in hepatic veins, spider web hepatic veins and collateral hepatic veins
  - MRI: hepatic vein thrombosis and IVC thrombosis
  - CT-Abdomen:
    - Early stage, ascites, enlarged liver
    - Cirrhotic liver with enlarged caudate lobe (as it has direct venous drainage to IVC)
    - Caudate lobe hypertrophy cause occlusion or compression on IVC
- Treatment depends on the stage:
  1. Fulminating cases ....liver transplantation
  2. No cirrhosis do portocaval shunt or mesocaval shunt
  3. IVC compression .....expandable metallic stent
  4. Portal hypertension treatment
  5. Ascitis treatment
- Prognosis depends on etiology if amenable to treatment
- Patient needs lifelong anticoagulant with warfarin