

Liver Failure

Cirrhosis is a chronic disease resulting from the necrosis of liver cells followed by fibrosis and nodule formation (nodules created by regeneration of hepatocytes, loss of liver function and liver blood flow).

Causes

Most common is alcohol, hepatitis B+D and Hep. C but other factors can be biliary cirrhosis, hereditary haemochromatosis, Wilson's disease.

Pathogenesis

Chronic injury to the liver results in inflammation, necrosis and eventually fibrosis (by activation of stellate cells).

Symptoms and signs

- Liver damage effects: Hepatic insufficiency (coma, jaundice, liver damage, ascites, ankle edema, haemorrhagic tendency), Hyperestrinism (gynecomastia, palmar erythema, testicular atrophy)
- Portal Hypertension effect: Portal hypertension (esophageal varices, splenomegaly, ascites, ankle edema), Hypersplenism (bone marrow changes, pancytopenia, anemia), leukopenia, thrombocytopenia)

Investigation

- Severity: Liver function (serum albumin (below 28g/L) and prothrombin time (prolonged)), Liver biochemistry (serum aminotransferases (slightly elevated) and serum ALP (alkaline phosphatase)), Serum e- (minus) (low sodium due to defect in free water clearance or to excess diuretic therapy). - Type: viral markers, serum autoantibodies, serum immunoglobulins, iron indices and ferritin, copper.

Imaging And Biopsy

Ultrasound (demonstrates changes in size and shape), CT scan (shows hepatosplenomegaly), Endoscopy (for detection of varices), MRI scan (diagnosis of benign tumor (hemangiomas) MR angiography for vascular anatomy and MR cholangiography for biliary tree) - Liver biopsy

Management

- Treating underlying cause - Prevent further liver damage (e.g. vaccination for hep A and B) - Preventing complications e.g. ascites → salt restriction and diuretics, Portal hypertension give propranolol

Liver failure

Patients with acute liver failure should be treated in a high dependency or intensive care setting. Close observation and treatment of complications must be initiated:

- Clotting factor deficiency: vitamin K (necessary for hepatic production of clotting factors) and, if necessary, fresh frozen plasma (FFP), should be given according to the clotting profile of the patient.
- Metabolic disturbances such as hypoglycaemia, hypokalaemia and hypocalcaemia should be corrected.
- Hepatic encephalopathy: a low-protein diet is given to reduce nitrogen toxin production. Regular lactulose is given, which is metabolized by colonic bacteria, reduces the colonic pH and therefore reduces the ammonia produced by these bacteria. Neomycin is an antibiotic which is an alternative to lactulose where diarrhoea is a problem.
- Hypotension, which is monitored with central venous pressure (CVP) measurement, is treated with human albumin solution.
- Liver transplantation: any individual with liver failure should be considered for referral to a specialist liver unit for transplant assessment.

In general, the 5 year survival rate is about 50 percent, but this also varies depending on the aetiology.

Links

Related Articles

Bibliography

References

KUMAR & CLARK, Kumar & Clark. *Kumar and Clark's Clinical Medicine, 8th Edition*. 8. edition. 2012. ISBN 9780702044991.