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Steven L. Flamm

Chronic Liver Disease in the Human Immunodeficiency Virus Patient 1
Chathur Acharya, Narayan Dharel, and Richard K. Sterling

There are an estimated 40 million HIV infected individuals worldwide, with chronic liver disease being the 2nd leading cause of mortality in this population. Elevated liver functions are commonly noted in HIV patients and the etiologies are varied. Viral hepatitis B and C, fatty liver and drug induced liver injury are more common. Treatment options for viral hepatitis C are rapidly evolving and are promising, but treatments are limited for the other conditions and is primarily supportive. Opportunistic infections of the liver are now uncommon. Irrespective of etiology, management requires referral to specialized centers and with due diligence mortality can be reduced.

Evaluation and Management of Hepatocellular Carcinoma 23
Laura M. Kulik and Attasit Chokechanachaisakul

The burden of hepatocellular carcinoma is rising and anticipated to escalate and while the best chance for long term cure remains transplantation, however the shortage of available organs remains a limitation. Liver directed therapy can serve the role of bridge/downstaging to transplant or as palliative care. Despite an improved overall survival among patients with HCC, due to advancements in surgical techniques, liver directed and systemic therapy, the 5 year overall survival remains low at 18% highlighting the need for novel therapies. Surveillance for HCC is key to detect disease at an early stage to increase the chances for a potentially curative option.

Renal Insufficiency in the Patient with Chronic Liver Disease 45
Nadia K. Bozanich and Paul Y. Kwo

This article highlights the manifestations of renal insufficiency. In particular, acute kidney injury (AKI) and hyponatremia are explained. AKI is defined as an abrupt loss of kidney function with retention of urea and electrolyte and fluid imbalances. The pathophysiology of renal disease in the setting of chronic liver disease and cirrhosis explains why those with cirrhosis are at risk for kidney injury. Hyponatremia is another complication of cirrhosis that may lead to renal injury and disease. Patient management and therapeutic strategies are also discussed.

Diagnosis and Management of Autoimmune Hepatitis 57
Albert J. Czaja

Autoimmune hepatitis is characterized by increased serum aminotransferase levels, autoantibodies, hypergammaglobulinemia, and interface
hepatitis. Presentation can be acute, severe (fulminant), asymptomatic, or chronic. Diagnosis requires multiple findings and exclusion of similar diseases. Treatment with prednisone or prednisolone with azathioprine is recommended. Budesonide with azathioprine has normalized laboratory test with few side effects, but histologic resolution, durability of response, and target population are uncertain. Progressive worsening, incomplete improvement, drug intolerance, and relapse after drug withdrawal are suboptimal outcomes. Calcineurin inhibitors and mycophenolate mofetil are salvage agents in small series and liver transplantation is effective for liver failure.

Diagnosis and Management of Overlap Syndromes

Chalermrat Bunchorntavakul and K. Rajender Reddy

Overlapping features between autoimmune hepatitis (AIH) and cholestatic disorders (primary biliary cirrhosis (PBC), primary sclerosing cholangitis (PSC), or indeterminate cholestasis), so-called overlap syndromes, usually have a progressive course toward cirrhosis and liver failure without adequate treatment. The diagnosis of overlap syndrome requires the prominent features of classic AIH and secondary objective findings of PBC or PSC. Empiric treatment for patients with AIH-PBC overlap is immunosuppressive therapy plus ursodeoxycholic acid. Empiric treatment for patients with AIH-PSC and AIH-cholestatic overlap is immunosuppressive therapy with or without ursodeoxycholic acid. Liver transplantation is indicated for patients who have end-stage liver disease.

The Ins and Outs of Liver Imaging

Erin K. O’Neill, Jonathan R. Cogley, and Frank H. Miller

Different imaging modalities including ultrasonography, computed tomography (CT), and MR imaging may be used in the liver depending on the clinical situation. The ability of dedicated contrast-enhanced liver MR imaging or CT to definitively characterize lesions as benign is crucial in avoiding unnecessary biopsy. Liver imaging surveillance in patients with cirrhosis may allow for detection of hepatocellular carcinoma at an earlier stage, and therefore may improve outcome. This article reviews the different imaging modalities used to evaluate the liver and focal benign and malignant hepatocellular lesions, and the basic surveillance strategy for patients at increased risk for hepatocellular carcinoma.

Contemporary Assessment of Hepatic Fibrosis

Alan Bonder, Elliot B. Tapper, and Nezam H. Afdhal

Newer noninvasive tests have begun to replace liver biopsy for staging purposes. The clinician must evaluate these tools and apply them to individual patients. None of these modalities give the exact same staging of fibrosis as a liver biopsy, but they are excellent tools for risk stratification. Still, it should be recognized that there are disease-specific issues with different utilizations and cutoffs for different clinical diseases. This article provides a framework for incorporating the use of serum biomarkers and elastography-based approaches to stage fibrosis into clinical practice. This review also covers recent developments in this rapidly advancing area.
Liver Transplantation for the Referring Physician  
Ming-Ming Xu and Robert S. Brown Jr  
Liver transplantation has become the treatment of choice for nearly all causes of end-stage liver disease, fulminant liver failure, and selected primary hepatic malignancies. The demand for liver transplantation has persistently outmatched the availability of donor organs leading to the development of novel strategies to expand the donor pool. The authors review the process of liver transplant evaluation, methods used to address the donor shortage, and disease-specific outcomes and challenges and discuss posttransplant care.

Assessment of Jaundice in the Hospitalized Patient  
Priya Kathpalia and Joseph Ahn  
Jaundice in the hospitalized patient is not an uncommon consultation for the general gastroenterologist. It is essential to explore the underlying cause of jaundice because management is largely aimed at addressing these causes rather than the jaundice itself. Although the diagnostic evaluation for jaundice can be broad, clinical judgment must be used to prioritize between various laboratory tests and imaging studies. Most importantly, clinicians must understand which conditions are emergent and/or require evaluation for liver transplantation. Further studies need to be performed to better understand the outcomes of hospitalized patients who develop jaundice.

Liver Disease in the Adolescent  
Alisha M. Mavis and Estella M. Alonso  
This article discusses common liver diseases in the adolescent. Briefly reviewed is the evaluation of the adolescent with new-onset liver enzyme elevation. Then the article discusses common liver diseases, such as nonalcoholic fatty liver disease, hepatitis, metabolic disease, biliary atresia, cystic fibrosis, and inherited disorders of cholestasis. Finally, a management approach to the adolescent with liver disease is outlined, noting the challenges that must be addressed to effectively care for not only liver disease in the adolescent but also the patient as a whole.

Diagnosis and Management of Hereditary Hemochromatosis  
Reena J. Salgia and Kimberly Brown  
Hereditary hemochromatosis is a rare genetic disorder that can have significant clinical consequences. Hemochromatosis is associated with iron overload, and can initially be recognized through laboratory testing for serum ferritin and transferrin saturation. Genetic testing for the HFE mutation can be performed in patients with elevated iron indices and a suspicion for hemochromatosis or liver disease. The main pathway resulting in iron overload is through altered hepcidin levels. Treatment of patients with the clinical phenotype of hereditary hemochromatosis is commonly through phlebotomy for removal of excess iron stores. This article highlights the current information and data regarding the diagnosis and management of hemochromatosis.
Portal vein thrombosis (PVT) is a rare event in the general medical setting that commonly complicates cirrhosis with portal hypertension, and can also occur with liver tumors. The diagnosis is often incidental when a thrombus is found in the portal vein on imaging tests. However, PVT may also present with clinical symptoms and can progress to life-threatening complications of ischemic hepatitis, liver failure, and/or small intestinal infarction. This article reviews the pathophysiology of this disorder, with a major focus on PVT in patients with cirrhosis, and presents detailed guidelines on optimal diagnostic and therapeutic strategies.