

# **Dental Management of Patients Liver Disease**

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# Liver Disease

- liver dysfunction may be attributed to a number of causes, including lifestyle habits and other acquired infections
- Viral hepatitis and alcoholic liver disease are two of the more common liver disorders
- Along with impaired drug metabolism
- significant bleeding may be a dental problem

# HEPATITIS

## DEFINITION

- Hepatitis: inflammation of the liver that may result from infections or drugs (e.g. viral hepatitis, tuberculosis, acetaminophen, alcohol, etc)
- Acute viral hepatitis is the most common form of infectious hepatitis. Five distinct viruses—types A, B, C, D, and E—are associated with this disease

# Routes of Transmission

- Hepatitis A:
  - Transmission of HAV occurs almost exclusively through fecal contamination of food or water, usually by traveling in an endemic region, or by direct contact with an infected person.
  - Transmission by contaminated blood products is rare
- Hepatitis B:
  - HBV transmitted efficiently by percutaneous and permucosal exposure; the most frequent route of transmission in the United States is sexual activity

# Routes of Transmission (cont'd)

- Hepatitis C

- Approximately 60% to 90% of HCV cases are transmitted by blood and blood products. Drug users and those with large or repeated percutaneous exposures. Others at increased risk are patients on hemodialysis, persons who have multiple sexual partners or who have sexual contacts with those who have chronic HCV

- Hepatitis D

- HDV occurs only as a coinfection with acute hepatitis B or as a superinfection in carriers of hepatitis B. HDV is transmitted parenterally and sexually, similar to HBV. HDV is reported to occur primarily in drug addicts and persons with hemophilia and frequently is associated with more severe fulminant infection than is infection with hepatitis B alone

# Routes of Transmission (cont'd)

- Hepatitis E
  - HEV resembles hepatitis A and is transmitted similarly via fecal / oral contamination

# Occupational Hazard

- *Little to no risk of transmission* of **HAV** and **HEV** has been reported to result from occupational exposure of **dental** health care workers to persons infected with these virus
- Comparatively, **risk** exists for transmission of **HBV**, and a **lesser risk** is present for **HCV** after occupational **exposure to infected blood/body fluid**

# Pathophysiology and Complications

- Most cases of viral hepatitis resolve with no complications
- HBV, HCV, and HDV may persist and can replicate in the liver when the virus is not completely cleared
- Consequences include recovery, persistent infection (or carrier state), dual infection, chronic active hepatitis, fulminant hepatitis, cirrhosis, hepatocellular carcinoma, and death



# Persons at risk for HBV Who Should Receive Vaccine

- **Individuals with occupational risk**
  - **Health care workers**
  - **Public safety workers**
  - **Clients and staff of institutions for the developmentally disabled**
- **Hemodialysis patients**
- **Recipients of certain blood products**
- **Household contacts and sex partners of hepatitis B virus (HBV) carriers**
- **Adoptees from countries where HBV infection is endemic**
- **International travelers**
- **Illicit drug users**
- **Sexually active homosexual and bisexual men**
- **Sexually active heterosexual men and women (who have multiple partners)**
- **Inmates of long-term correctional facilities**

# Treatment

- Palliative and supportive
- Avoid hepatotoxic medications and prescribe necessary ones with Liver impairment dose
- STOP all alcohol and drugs metabolized by the liver
- Alanine aminotransferase -- Diagnostic test  
for impairment of liver

- Viral antigen and ALT levels should be monitored for 6 months so that it can be determined whether the hepatitis is resolving

# DENTAL MANAGEMENT

## Medical Considerations:

- Identification of potential or actual carriers of HBV, HCV, and HDV is problematic
- Risk of viral hepatitis to be transmitted can be a precursor for HIV  
=> Therefore, all patients with a history of viral hepatitis must be managed as though they are potentially infectious

# DENTAL MANAGEMENT

## Patients With Active Hepatitis:

- No dental treatment other than urgent care
- Urgent care should be provided only in an isolated operatory with strict standard precautions
- Aerosols should be minimized and drugs metabolized by liver should be avoided
- If surgery is necessary, preoperative prothrombin time and bleeding time should be obtained and abnormal results discussed with the physician

# DENTAL MANAGEMENT

## *Patients Who Are **Hepatitis Carriers:***

- **STOP** plans for elective dental treatment and refer to a physician
- Necessary emergency dental care should be provided in an isolated operator and minimal aerosol production with protective precautions

# DENTISTS WHO ARE HEPATITIS CARRIERS

- CDC - “health care professionals performing invasive procedures must know their status”:
  - positive for a blood-transmissible virus —> should not perform exposure-prone procedures unless they have health authority permission
  - professional ethics and practice guidelines recommend aggressive efforts to prevent potential transmission through adherence to strict aseptic technique, periodic retesting of HBsAg and HCV RNA, and receipt of informed consent from patients

# Drug Administration

- Chronic active hepatitis or is a carrier of HBsAg or HCV and has impaired liver function, the dosage of drugs metabolized by the liver should be decreased, —> avoid drugs or consult
- As a guideline, drugs metabolized in the liver should be considered for diminished dosage when one or more of the following are present:
  - Aminotransferase levels elevated to greater than 4 times normal values
  - Serum bilirubin elevated to above 35  $\mu\text{M/L}$  or 2 mg/dL
  - Serum albumin levels lower than 35 mg/L
  - Signs of ascites and encephalopathy, and prolonged bleeding time

# Drug Administration

- Many drugs commonly used in dentistry are metabolized principally by the liver; they may be used in patients with hepatic disease that is not severe, although in limited amounts
- Treatment planning modifications are not required for the patient who has completely recovered from hepatitis



# Pre-Dental Treatment

- Obtain platelet count + function
- International normalized ratio (INR) <3.5
  - INR > 3.5 —> +/- severe postoperative bleeding.  
In this case, extensive surgical procedures should be postponed.
- Necessary surgery —> vitamin K to reverse coagulopathy but first discuss with physician
- Always consult the physician in symptomatic Hepatitis patients

# Oral Manifestations and Complications

- Prolonged bleeding
- Chronic viral hepatitis increases the risk for hepatocellular carcinoma. This malignancy rarely metastasizes to the jaw (fewer than 30 cases in the jaw were reported)

# ALCOHOLIC LIVER DISEASE

- Alcoholism is a chronic addiction to ethanol in which a person craves and uncontrollably consumes ethanol, becomes tolerant to its intoxicating effects, and has symptoms of alcohol withdrawal when the drinking stops

# MEDICAL MANAGEMENT

- Treatment of patients with alcoholism consists of 3 basic steps:
  - The first is identification and intervention
  - The second step is withdrawal from alcohol or, in cases of severe dependence, reduction in alcohol consumption
  - The third step is to manage central nervous system depression caused by the rapid removal of ethanol

# DENTAL MANAGEMENT

## Medical Considerations

- Areas of assistance include the following:
  - Screening for alcohol risks and abuse
  - Providing alcohol prevention information
  - Directing patients with abuse problems to health care providers for assessment or treatment
  - Supporting dependent patients during the recovery period
  - Minimizing relapse in recovering patients

- ORAL RELATED MANIFESTATIONS :

- Traumatic or unexplained injuries (driving under the influence, bruises, cuts, scars, broken teeth)
- Jaundice (sclerae, mucosa)
- Peripheral edema (edematous puffy face, ankle edema)
- Ecchymoses, petechiae, or prolonged bleeding

# Oral Complications and Manifestations

- **Poor hygiene and neglect (caries)** are prominent oral findings in patients with chronic alcoholism
- Pts with cirrhosis have been reported to have **impaired gustatory function** and are malnourished
- Nutritional deficiencies can result in **glossitis** and **loss of tongue papillae**, along with **angular or labial cheilitis**, which is complicated by concomitant **candidal infection**
- Vitamin K deficiency, **disordered hemostasis**, portal hypertension, and splenomegaly (causing thrombocytopenia) can produce spontaneous **gingival bleeding, mucosal ecchymoses, and petechiae**
- A **sweet, musty breath odor**, jaundiced mucosal tissue

# Oral Complications and Manifestations

- Bilateral, painless hypertrophy of the parotid glands (sialadenosis) is a frequent finding in pts with cirrhosis
- Alcohol abuse and tobacco use are strong risk factors for the development of oral squamous cell carcinoma, and the dentist must be aggressive (as with all patients) in the detection of unexplained or suspicious soft tissue lesions (especially leukoplakia, erythroplakia, or ulceration) in chronic alcoholic patients
- High-risk sites for oral squamous cell carcinoma include the lateral border of the tongue and the floor of the mouth



# Treatment Planning Modifications

- Patients with cirrhosis tend to have more plaque, calculus, and gingival inflammation
- The dentist should not provide extensive care until the patient demonstrates an interest in, and an ability to care for, his or her dentition
- Liver enzyme induction and central nervous system effects of alcohol in patients with alcoholism may require increased amounts of local anesthetic or the use of additional anxiolytic procedures
- Appointments with these patients may therefore require more time if this manifestation was not anticipated

# ***Treatment Considerations***

3 major dental treatment considerations apply for a patient with alcoholism:

1. Bleeding tendencies
  2. Unpredictable metabolism of certain drugs
  3. Risk or spread of infection
- A patient with untreated alcoholic liver disease is not a candidate for elective, outpatient dental care and should be referred to a physician

## ***Minimizing Relapse***

- Avoid psychoactive drugs, narcotics, sedatives, and alcohol-containing medications in patients who are recovering from alcoholism
- If a potentially mood-altering drug is required, the pt's primary care physician (or substance abuse advisor) should be consulted about its use
  - If approved for use, the drug should be prescribed only in the amount needed without refills
- Designating a family member to fill and dispense the drug can minimize the risk of abuse

- Antibiotic prophylaxis is not needed if oral infection is absent
- To identify those at risk for responding poorly to invasive procedures and infections
- Consultation physician regarding use of antibiotics should be considered for persons with moderate to severe disease
- Antibiotics should be prescribed when infection develops and is unlikely to resolve without treatment

Thank you