Dr. Ahmed Al-Marashi
BDS MSc Oral and Maxillofacial Surgery (UK)

Considerations for Patients with Hepatitis in Dental Settings

Liver play important role in drug metabolism, synthesis of coagulation factors, secretion of bile for fat metabolism, excretion of bilirubin and other important functions.

Hepatitis is inflammation of the liver which may be caused by infectious and non-infectious condition. Viral hepatitis is the most common form of infectious hepatitis, while non-infectious condition can be caused by drugs (e.g. Acetaminophen) or alcohol abuse.

Five subtypes of viral hepatitis exist and include type A, B, C, D and E. The causative virus is different for each subtype, but they all have one target organ (i.e. Liver). The sub types also differ in their route of transmission and their later complications (Table.1).

Clinical Presentation:

After the incubation period, most of the cases with HBV and HCV are asymptomatic. On the other hand, majority of patients with HAV are symptomatic. The signs and symptoms of **Acute Hepatitis** are initially similar to any viral infection and described as flu-like. These can be categorized into 3 phases:

1. The Pre-Icteric (Prodromal) Phase:

In this phase patient experience non-specific symptom of abdominal pain, anorexia, nausea, vomiting, fatigue, malaise and fever. This phase lasts for about 2 weeks.

Tabel.1 General comparisons between different sub-types of Hepatitis viruses

	Type A (HAV)	Type B (HBV)	Type C (HCV)	Type D (HDV)	Type E (HEV)
Main route of Transmission	Fecal / Oral	Parenteral, Sexual Contact	Parenteral, Sexual Contact	Parenteral, Sexual Contact	Fecal / Oral
Chronic carrier status	No	Yes	Yes	Yes	No
Complication of the liver	Rare	Increased risk of Liver cirrhosis and Hepatocellular carcinoma	Increased risk of Liver cirrhosis and Hepatocellular carcinoma	Increased risk of Liver cirrhosis and Hepatocellular carcinoma	Rare
Occupational transmission	Little or No risk	High Risk*	Intermediate Risk**	Presents as co-infection with Hepatitis B	Little or No risk
Immunization	Available	Available	Not Available	Not Available	Not Available

* Risk of acquiring HBV after needle stick injury is 30%, with some reported cases of transmission by contact with saliva of infected patients.
** Risk of acquiring HCV after needle stick injury is 8%.

2. The Icteric Phase:

This phase is characterized by development of jaundice (i.e. Yellow-Brown discoloration of the eye, skin, oral mucosa and urine.) and reduction in the non-specific symptoms experienced in the previous phase. Hepatomegaly and splenomegaly are frequently seen. This phase might last for 8 weeks.

3. Post-Icteric (Convalescent or Recovery) Phase:

During this phase, the symptoms generally disappear with the exception of hepatomegaly and abnormal liver function, which may continue for longer periods. The clinical recovery may require several months (Approximately 4 months).

Chronic Hepatitis might develop with certain sub-types of this disease and the patient might remain asymptomatic for years (up to 30 Years). Eventually, liver complications occur and the signs and symptoms become apparent. Complications include hepatic fibrosis, liver cirrhosis and hepatocellular carcinoma.

The presentations of these complications include bleeding disorders, ascites, jaundice, spider angioma, dark urine, loss of weight, fatigue and liver tenderness (Figure.1, Figure.2).

Dental Management

Identification of those patient can be complicated sometimes, knowing the fact that they might be asymptomatic in most instances. This alert the healthcare provider to adopt strict infection control policy for every single patient, whether known to have the disease or not. Recommendation for Hepatitis B immunization have been applied worldwide and even made as an obligation to practice dentistry. Management can be categorized into the following groups:

1. Patients with Active Hepatitis.
2. Patients with History of Hepatitis.
3. Patients with High Risk for Hepatitis Infection.
4. Patients who are Hepatitis Carriers.
5. Patients with Suggestive Signs and Symptoms of Hepatitis.

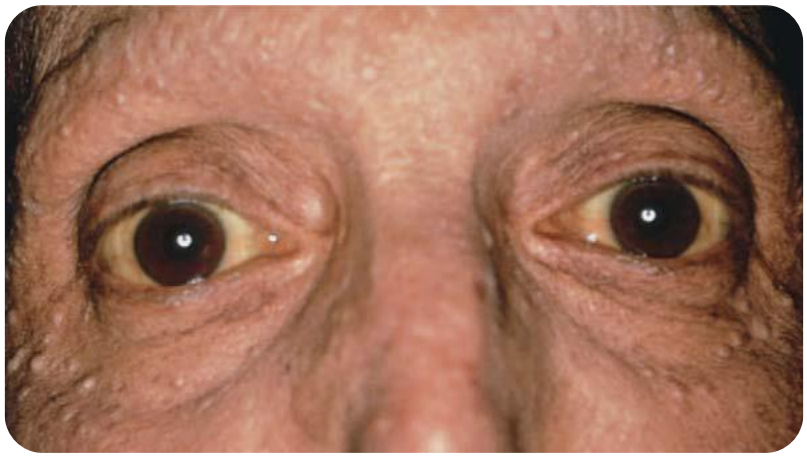

Figure 2 Yellow-brown discoloration of eyes and skin (i.e. Jaundice).

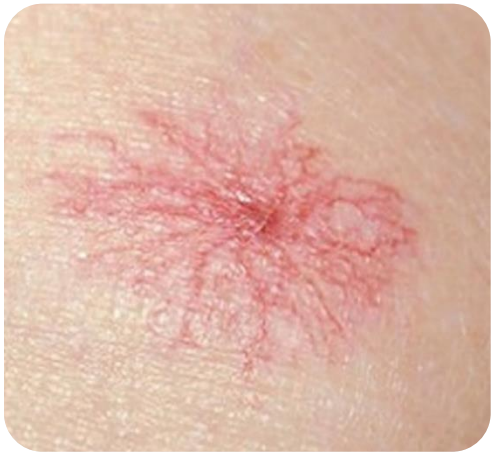

Figure 2 Spider Angiomas.

Patients with Active Hepatitis.

No dental treatment should be provided, except for emergency urgent intervention. Treatment must be provided is isolated environment in hospital setting with strict infection control policy. Aerosol production with high speed handpiece and three-way syringe should be minimized and drug that is metabolized by liver should be avoided as much as possible or, when needed, used in reduced dosage (Appendix I). If emergency treatment is planned, bleeding time and INR should be measured and abnormal results must be evaluated by physician. Newly diagnosed patients with active disease must be referred for medical treatment.

Patients with History of Hepatitis.

The type of the disease must be established by history taking and contacting the supervising physician. Disease acquired in childhood through contaminated food and water establish history of Hepatitis A as a diagnosis. Infections through transfusion of contaminated blood products can be either Hepatitis B or C. Patient with history of HBV and HCV might be chronic carrier of the disease.

No need for modification in dental treatment except for having strict infection control policy.

Patients with High Risk for Hepatitis Infection.

Certain patients might fall in this category (Appendix II). No need for modification in dental treatment except for having strict infection control policy.

These patients might need to be referred for laboratory testing in certain situations. For instance, if sign and symptom suggestive of Hepatitis is evident or if needle stick injury occurred during delivery of treatment.

Patients who are Hepatitis Carriers.

Patients fall in this category can be either chronic carrier with normal liver function or can be Chronic active carrier with compromised liver function. Generally, treatment can be provided with strict infection control policy. While for chronic active carriers bleeding complication and drug toxicity might occur, which alert the need for medical consultation and laboratory testing.

Patients with Suggestive Signs and Symptoms of Hepatitis.

Any patients with suggestive signs and symptoms of the disease should not be offered any elective treatment until laboratory test result is available and medical consultation is provided. Emergency treatment must be provided in isolated setting with minimal aerosol production.

General Recommendation after Exposure to Blood Products

Recommendation is dependent on the status of source person and the status of the healthcare provider. The source patient can be either known to be healthy, infected or of unknown status. The healthcare provider can be either known to be vaccinated or non-vaccinated. Vaccinated individuals can be either responder or non-responder to vaccine. Depending on these categories different recommendation can be summarized when needle stick injury or puncture wound occur during treatment by blood-contaminated objects (Table.2).

Table.2 Summary of General Recommendations after Exposure to Blood Products

		Healthcare Vaccine Status			
		Unvaccinated	**Responder to Vaccine***	**Non-responder to vaccine**	**Unknown response to vaccine**
Source Person Status	**HBV Positive****	Giving HBV immune globulin (HBIG) Start HBV Vaccine	No Treatment	Giving HBV immune globulin (HBIG) Start HBV Vaccine	Test exposed healthcare to know the response
	HBV Negative	Start HBV Vaccine	No Treatment	No Treatment	No Treatment
	Unknown	Start HBV Vaccine	No Treatment	If High risk source person treat as HBV positive	Test exposed healthcare to know the response

* Serum anti-HBsAg is >10 mIU/mL.
** HBsAg positive, Hepatitis B surface antigen positive.

Appendix I

Drugs usually prescribed in dentistry which are primarily metabolized by the liver:

• Local anesthetics (appear safe for use during liver disease when used in appropriate amounts):

1. Lidocaine.
2. Mepivacaine.
3. Prilocaine.
4. Bupivacaine.

• Analgesics:

1. Aspirin. *
2. Acetaminophen. †
3. Codeine. †
4. Ibuprofen. *

• Sedatives:

1. Diazepam (Valium). †
2. Barbiturates. †

• Antibiotics:

1. Ampicillin.
2. Tetracycline.
3. Metronidazole. ‡
4. Vancomycin. ‡

*Limit dose or avoid if severe liver disease (acute hepatitis and cirrhosis) or hemostatic abnormalities are present.
†Limit dose or avoid if severe liver disease (acute hepatitis and cirrhosis) is present.
‡Avoid if severe liver disease (acute hepatitis and cirrhosis) is present.

Appendix II

Persons at high risk for hepatitis B, 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 partners of hepatitis B virus (HBV) carriers.
- Adoptees from countries where HBV infection is endemic.
- International travelers.
- Illicit drug users.

References

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