



A guide to ordering Hepatitis Serology

Introduction: Hepatitis virus serological testing is carried out in a number of different clinical situations. This article provides a guide to hepatitis serology ordering in some of the more common scenarios seen in everyday clinical practice. A summary table for requesting Hepatitis serology is provided at the end of this article for your convenience; Table 1.

Suspected acute hepatitis

Patients who present with suspected acute hepatitis could be infected with a number of different viruses. The usual hepatitis panel includes Hepatitis A, B and C. It should however be remembered that Epstein Barr Virus (EBV) and Cytomegalovirus (CMV) are also very common causes of inflammation of the liver particularly in children and young adults. For Hepatitis serology it is sufficient to request "Hepatitis A, B and C serology" on the request form provided that in the clinical notes section of the request form that "?hepatitis" or "?abnormal LFTs" is written. Further clinical history (eg overseas travel) is important for the pathologist to ensure that the appropriate testing has been carried out. The Clinipath Pathology testing protocol is to perform Hepatitis A IgM (and if this is detected we will confirm it with a Hepatitis A IgG antibody test), Hepatitis B surface antigen (HBsAg), Hepatitis B core antibody (HBcAb) and a Hepatitis C antibody in this clinical setting. If EBV is clinically suspected, then this should be specifically requested. Writing "EBV serology" is sufficient. A monospot may also be ordered, it is not as sensitive as EBV serology but may give a rapid answer. Hepatitis E virus should be considered in patients who have travelled to developing countries and who have proven hepatitis and are negative for Hepatitis A, B and C. Hepatitis E virus is a particularly severe infection in pregnant women. Hepatitis D virus can only occur in patients who are Hepatitis B surface antigen positive as it requires Hepatitis B virus replication to exist.

Sexually transmitted disease screening

Hepatitis B may be transmitted by sexual contact and serological testing for patients at risk of Hepatitis B through sexual exposure should be considered.

In this instance, we are interested in;

a) whether or not the patient has acquired Hepatitis B in the past (it should be noted that screening immediately following sexual exposure will not detect acute infection and follow up serology would be required) and

b) whether or not the patient is immune to Hepatitis B.

We therefore recommend a Hepatitis B surface antigen (HBsAg) test for the former and Hepatitis B surface antibody test (HBsAb) for the latter. If a request is made for "Hepatitis B serology" as part of an STD work up, then we will routinely perform a Hepatitis B surface antigen but will also do a Hepatitis B surface antibody if specifically requested.

Although Hepatitis C is rarely transmitted by sexual contact, testing is indicated if there are risk factors such as a history of injecting drug use or previous tattooing. Follow up serology in 3 months including Hepatitis B surface antigen and Hepatitis C antibody may be considered in order to detect acute infection following exposure. Please note that Hepatitis B surface antigen testing if performed within several weeks of a Hepatitis B immunization may give a false positive result due to the presence of synthetic Hepatitis B surface antigen in the vaccine.

Immunity following immunization or natural infection

Vaccines are now available for Hepatitis A and Hepatitis B and testing for immunity may sometimes be indicated. It is sufficient to write on the request form "Hepatitis A and B serology" and in the clinical notes write "? Immunity to Hepatitis A and B" or "Post Hepatitis A and B vaccination ? immune". In this scenario, the Clinipath Pathology protocol would be to perform a Hepatitis A IgG antibody and a Hepatitis B surface antibody (HBsAb).

Alternatively "Hepatitis A IgG antibody" plus "HBsAb" may be specifically written on the request form. These tests can of course also be ordered as individual tests if required.

Antenatal screening

Hepatitis B may be transmitted at delivery and in the post natal period. Hepatitis B screening is routinely recommended during pregnancy and if Hepatitis B carriage is detected, then prophylaxis for the neonate is indicated. The Clinipath Pathology protocol is to perform a Hepatitis B surface antigen (HBsAg) test to screen for Hepatitis B in pregnancy. It is sufficient to request "Hep B serology" provided that in the clinical notes "antenatal screen" is written. Hepatitis C testing is funded by Medicare Australia for screening during pregnancy. Although its value in helping to prevent neonatal infections is currently limited, this may soon change as we better understand the role of Hepatitis C viral load testing. This will help to define the risk of transmission of Hepatitis C during breast feeding and the role of the mode of delivery (eg Caesarian section) plays in prevention of transmission of infection to newborns. Hepatitis C testing is always indicated in patients with risk factors such as injecting drug use or previous tattooing. Requesting "Hepatitis C serology" is sufficient information on the request form. The current prevalence of Hepatitis C seropositivity in our antenatal population is 0.5%.

Blood or body fluid exposure

The recipient (the person that was exposed)

Where a blood or body fluid exposure has occurred, it is of value to determine a patient's baseline status for Hepatitis B and C (and HIV) and to follow the patient up to monitor for acquisition of these viruses. Immediately post exposure, the aim is to establish a

Table 1. Summary Table

Clinical situation	Tests requested *	Tests Performed by Clinipath Pathology	Clinical information required on form
Suspected acute hepatitis	Hepatitis A, B, C serology	HepAlGM, HepBsAg, HepBcAb, HepCAb – Note: suggest adding Hepatitis E serology in overseas traveller and always consider EBV and CMV serology in acute hepatitis in younger patients	? Hepatitis or abnormal LFTs
STD screen or post sexual exposure	Hepatitis B serology Hepatitis C serology	Hepatitis B surface Antigen (HepBsAg) – this will be done routinely in an STD screen. This will need to be followed up to detect acute infection. Hepatitis B surface Antibody (HepBsAb) – measures baseline immunity as a guide to immunization. This will be done if specifically requested. Hepatitis C Antibodies – indicated in IV Drug users ,tattoos etc	STD screen
Immunity post immunisation	Hepatitis A serology Hepatitis B serology	Hepatitis A IgG Antibody Hepatitis B surface Antibody (HepBsAb) – guidelines for re-vaccination are available in the Australian Immunisation Handbook Note: These can be ordered individually	? immunity post Hep A and B vaccination
Antenatal screen	Hepatitis B serology Hepatitis C serology	Hepatitis B surface Antigen (HepBsAg) . Follow up serology may be required later in pregnancy if the patient is exposed to Hepatitis B. Hepatitis C Antibodies – always indicated in IV Drug users, tattoos etc	Antenatal screen
BLOOD/ BODY FLUID EXPOSURE	RECIPIENT (Initial testing)	Hepatitis B surface Antibody (HepBsAb) – this establishes immune status and guides Hep B prophylaxis Hepatitis C Antibody – important for OH&S reasons and establishes baseline	RECIPIENT – baseline post blood/body fluid exposure or RECIPIENT – baseline post needle-stick exposure
	DONOR (Initial testing)	Hepatitis B surface Antigen (HepBsAg) Hepatitis C Antibody	DONOR – baseline post blood/body fluid exposure or DONOR – baseline post needle-stick exposure

* Please note that this table only includes the Hepatitis serology testing required and other serological tests may be indicated in specific clinical situations e.g. HIV serology etc.

baseline for the person’s immunity or prior exposure to these viruses. We therefore recommend Hepatitis B surface antibody (HBsAb) testing be performed on the person who was exposed. This will help guide the Hepatitis B prophylaxis required for the exposed person. The current edition of the Australian Immunisation Handbook is the best guide to this prophylaxis. Documenting the patient’s Hepatitis C antibody status is also important for legal and occupational health and safety reasons. It is sufficient to write on the request form “Hep B and C serology” provided that in the clinical notes you state “RECIPIENT – baseline test post blood exposure” or “RECIPIENT – baseline test post fluid exposure” or

“RECIPIENT – baseline testing – needle stick injury”. Follow up testing will be determined by the results of initial testing of the recipient and donor.

The “donor” or “source” (the source of the blood or body fluid)

In cases where the source of the blood or body fluid is known, it is of value to determine the person’s infective status for Hepatitis B and C (and HIV). We therefore routinely recommend testing for Hepatitis B surface antigen (HBsAg) and Hepatitis C antibodies (and HIV serology). If HBsAg is detected, then further testing such as Hepatitis B e Antigen (HBeAg) may be indicated to better define the risks of transmission to the recipient. We recommend discussing

this further testing with the clinical microbiologist. Likewise, if Hepatitis C antibodies are detected, then there may be benefit in some circumstances for testing the donor for Hepatitis C RNA by nucleic acid testing such as PCR.

Summary

Although Hepatitis serological testing is complex, provided the appropriate clinical information is provided to the laboratory, we will be able to ensure the most appropriate testing is performed for your patient.

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