### Test Name: Hepatitis A Antibody (Anti HAV), IgG, Serum (CMIA)

**Results:** 0.10

**Units:** Index

**Bio. Ref. Interval:** <1.00

**Interpretation**

<table>
<thead>
<tr>
<th>RESULT (INDEX)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.00</td>
<td>Non Reactive</td>
</tr>
<tr>
<td>&gt;=1.00</td>
<td>Reactive</td>
</tr>
</tbody>
</table>

**Note**

1. Reactive result indicates present or past exposure to HAV/recovery/immunity to HAV.
2. Reactive result does not distinguish recent from past infection. To establish recent infection, Anti HAV IgM should be measured.
3. False negative/positive results are observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy.
4. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results.

**Comments**

Hepatitis A Virus (HAV) is a RNA virus of Picornavirus family transmitted by fecal-oral route. Infection with HAV is self limiting though 5-10% cases may show a secondary rise in enzymes. Since symptomatic Hepatitis A virus infections are clinically indistinguishable from Hepatitis B or C virus, serological testing is an extremely important tool to achieve proper diagnosis. Anti HAV IgG antibodies develop within 1-2 weeks of IgM antibodies and typically remain positive for life.

### Test Name: Hepatitis A Antibody (Anti HAV), IgM, Serum (CMIA)

**Results:** 0.10

**Units:** Index

**Bio. Ref. Interval:** <0.80

**Interpretation**

<table>
<thead>
<tr>
<th>RESULT (Index)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.80</td>
<td>Non Reactive</td>
</tr>
<tr>
<td>0.80-1.20</td>
<td>Borderline Reactive</td>
</tr>
<tr>
<td>&gt;1.20</td>
<td>Reactive</td>
</tr>
</tbody>
</table>
Patients exhibiting Borderline Reactivity should be monitored at weekly intervals. This will distinguish rising Anti HAV- IgM levels associated with Acute Hepatitis A infection from decreasing or unchanging levels associated with recovery.

2. Rheumatoid factor can give rise to false positive results

3. Reactive results suggest recent HAV infection

4. False negative/positive results are observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy.

5. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results.

Comments

Hepatitis A Virus (HAV) is a RNA virus of Picornavirus family transmitted by fecal- oral route. Infection with HAV is self limiting though 5-10% cases may show a secondary rise in enzymes. Since symptomatic Hepatitis A virus infections are clinically indistinguishable from Hepatitis B or C virus, serological testing is an extremely important tool to achieve proper diagnosis. During the acute phase of HAV infection, IgM appears in patient's serum in nearly all cases at the onset of symptoms, peaks within the first month of illness and persists for 3-6 months. It declines to undetectable levels within 12 months. The most effective diagnostic determination of HAV acute infection is the detection of Anti HAV- IgM.

<table>
<thead>
<tr>
<th>HEPATITIS B CORE ANTIBODY (Anti-HBc), IgM, SERUM (CMIA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESULT (Index)</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>&lt;1.00</td>
</tr>
<tr>
<td>&gt;=1.00</td>
</tr>
</tbody>
</table>

Note

1. Diagnosis of an infectious disease should not be established on the basis of a single test result. The patient’s clinical history, symptomatology, as well as other diagnostic data should be considered.

2. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results.
HEPATITIS B CORE ANTIBODY (Anti- HBc), TOTAL, SERUM (CMIA)

**Test Name**
Hepatitis B Core Antibody (Anti-HBc), Total, Serum

**Results**
0.00

**Units**
Index

**Bio. Ref. Interval**
<1.00

**Comments**
Anti- HBc IgM is the earliest specific antibody appearing usually within 2 weeks after HBsAg. It is found in high titres for a short period during the acute phase that covers the serologic window and declines to low levels during recovery. It may be detectable up to 6 months. It may be the only serologic marker present after HBsAg and HBeAg have disappeared and HBsAb & HBeAb have not appeared (Serologic gap / window).

**Uses**
To differentiate Acute & Chronic HBV infection

<table>
<thead>
<tr>
<th>RESULT (INDEX)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.00</td>
<td>Non Reactive / Not Detected</td>
</tr>
<tr>
<td>&gt;=1.00</td>
<td>Reactive / Acute / Resolving / Chronic HBV infection</td>
</tr>
</tbody>
</table>

**Note**
1. Discrepant results may be observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy
2. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results

**Comments**
Anti- HBc Total is the first antibody to appear usually 4-10 weeks after appearance of HBsAg, at the same time as clinical illness and persists for years or maybe lifetime. It is almost always present during chronic HBV infection. It detects virtually all individuals who have been previously infected with HBV. Detection of Anti HBc Total positive donors reduces incidence of post transmission Hepatitis and possibility of other viral infections like HIV due to frequency of dual infections. This antibody may be seen in 2% of routine donors without any other serologic marker and with normal liver enzyme levels. This indicates recovery from subclinical HBV infections. Anti HBc Total is not protective and cannot be used to distinguish Acute from Chronic infection.

**Uses**
**HEPATITIS B SURFACE ANTIBODY (Anti-HBs), SERUM (CMIA)**

<table>
<thead>
<tr>
<th>Result in mIU/mL</th>
<th>Remarks</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10</td>
<td>Non Reactive</td>
<td>Not Detected</td>
</tr>
<tr>
<td>&gt;=10</td>
<td>Reactive</td>
<td>· Recent resolving HBV infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· Resolved HBV infection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>· HBV immunity after vaccination</td>
</tr>
</tbody>
</table>

**Note**

1. Discrepant results may be observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy & mutant forms of HBsAg
2. For diagnostic purposes, results should be used in conjunction with clinical history and other hepatitis markers
3. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results

**Comments**

Anti HBs appears after HBsAg disappears and persists thereafter. It is rarely detected in the presence of HBsAg in patients with Acute Hepatitis B, but 10-20% of patients with Chronic Hepatitis B may show low levels of Anti HBs. Presence of Anti HBs has been shown to be important in protection against HBV infection. Passively acquired antibody to HBV as in the case of blood transfusion and recent immunoglobulin therapy does not signify immunity.

**Uses**

- To monitor the success of Hepatitis B vaccination
- To monitor the convalescence and recovery of Hepatitis B infected individuals
- To indicate previous exposure to HBV in an asymptomatic individual
Name: DUMMY
Lab No.: 135091650
A/c Status: P
Age: 49 Years
Gender: Male
Ref By: Dr. UNKNOWN
Report Status: Final

Test Name | Results | Units | Bio. Ref. Interval
--- | --- | --- | ---
1. All Reactive results are tested additionally by Specific antibody Neutralization assay. For further confirmation Molecular assays are recommended
2. Discrepant results may be observed during pregnancy, patients receiving mouse monoclonal antibodies for diagnosis or therapy & mutant forms of HBsAg
3. For diagnostic purposes, results should be used in conjunction with clinical history and other hepatitis markers for Acute or Chronic infection
4. For monitoring HBsAg levels, Quantitative HBsAg assay is recommended

Comment
Hepatitis B Virus (HBV) is a member of the Hepadna virus family causing infections of the liver with extremely variable clinical features. Hepatitis B is transmitted primarily by body fluids especially serum and also spread effectively sexually and from mother to baby. In most individuals HBV hepatitis is self-limiting, but 1-2% normal adolescents and adults develop Chronic Hepatitis. Frequency of chronic HBV infection is 5-10% in immunocompromised patients and 80% in neonates. The initial serological marker of acute infection is HBsAg which typically appears 2-3 months after infection and disappears 12-20 weeks after onset of symptoms. Persistence of HBsAg for more than six months indicates development of carrier state or Chronic liver disease.

Uses
- Routine screening of blood and blood products to prevent transmission of Hepatitis B virus (HBV) to recipients
- To diagnose suspected HBV infection and monitor the status of infected individuals
- To evaluate the efficacy of antiviral drugs
- For Prenatal Screening of pregnant women

Hepatitis Be Antibody (Anti-HBe), Serum (CMIA)

<table>
<thead>
<tr>
<th>RESULT (Index)</th>
<th>REMARKS</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;1.00</td>
<td>Non Reactive</td>
<td>Not Detected</td>
</tr>
<tr>
<td>&lt;=1.00</td>
<td>Reactive</td>
<td>Resolution of Infectious state</td>
</tr>
</tbody>
</table>

Note
1. Discrepant results may be observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy
Test Name: HEPATITIS Be ANTIGEN (HBeAg), SERUM (CMIA)

Results: 0.00
Units: Index
Bio. Ref. Interval: <1.00

Interpretation

<table>
<thead>
<tr>
<th>RESULT (Index)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.00</td>
<td>Non Reactive / Not Detected</td>
</tr>
<tr>
<td>&gt;=1.00</td>
<td>Reactive / Highly infectious state</td>
</tr>
</tbody>
</table>

Note

1. Discrepant results may be observed in patients receiving mouse monoclonal antibodies for diagnosis or therapy
2. For heparinized patients, draw specimen prior to heparin therapy as presence of fibrin leads to erroneous results
3. False negativity about 15% in USA and > 50% in Asia, Africa & Southern Europe is observed in patients infected with HBV mutants where HBeAg is negative but HBV DNA is positive

Comments

HBeAg is a marker of active HBV replication in the liver indicating a highly infectious state. It appears within 1 week after appearance of HBsAg and is found only when HBsAg is present. HBeAg appears early in disease before biochemical changes and disappears after liver enzymes peak which is usually after 3-6 weeks. Persistence for more than 20 weeks suggests progression to Chronic carrier state and possible Chronic Hepatitis. It is the best predictor of maternal infectivity (90%) to untreated neonates at the time of delivery.

Uses

- Indicator of highly infectious state
Name: DUMMY
Lab No.: 135091650
Age: 49 Years
Gender: Male
A/c Status: P
Ref By: Dr. UNKNWON

Collect.ed: 29/8/2017 12:00:00AM
Received: 29/8/2017 10:02:48AM
Reported: 29/8/2017 10:53:06AM
Report Status: Final

Test Name
- Predictor of maternal infectivity
- Indicator of resolution of infection

Results

Units

Bio. Ref. Interval

Page 7 of 10
**Name:** DUMMY  
**Lab No.:** 135091650  
**Age:** 49 Years  
**Gender:** Male  
**A/c Status:** P  
**Ref By:** Dr. UNKNWON  
**Report Status:** Final  
**Reported:** 29/8/2017 12:00:00AM  
**Received:** 29/8/2017 10:02:48AM  
**Collected:** 29/8/2017 10:53:06AM

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Results</th>
<th>Units</th>
<th>Bio. Ref. Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEpatitis C ANTibody (Anti-HCV), Serum (CMIA)</td>
<td>0.00</td>
<td>Index</td>
<td>&lt;1.00</td>
</tr>
</tbody>
</table>

**Interpretation**

<table>
<thead>
<tr>
<th>RESULT (INDEX)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1.00</td>
<td>Non Reactive / Not Detected</td>
</tr>
<tr>
<td>&gt;=1.00</td>
<td>Reactive/Asymptomatic/ Infective state/ Carrier state</td>
</tr>
</tbody>
</table>

**Note**

1. False positive results are seen in Autoimmune diseases, Rheumatoid factor, Hypergammaglobulinemia, Paraproteinemia, passive antibody transfer, Anti-idiotypes & Anti-superoxide dismutase
2. Supplemental testing is necessary in Reactive results with index value between 1.0 - 5.0 to identify and exclude biological false positive results
3. All reactive results should be verified by HCV RNA PCR to differentiate between past and present infection (as per CDC recommendation)
4. False negative results are seen in early Acute infection, Immunosuppression & Immuno-incompetence

**Comments**

Hepatitis C (HCV) is an RNA virus of Flavivirus group transmitted via blood transfusions, transplantation, injection drug users, accidental needle punctures in healthcare workers, dialysis patients and rarely from mother to infant.10% of new cases show sexual transmission. As compared to HAV & HBV, chronic infection with HCV occurs in 85% of infected individuals. In high risk populations, the predictive value of Anti HCV for HCV infection is > 99% whereas in low risk populations it is only 25%.

**Uses**

- Indicator of past or present infection, but does not differentiate between Acute / Chronic / Resolved infection
- Routine screening of low and high prevalence populations including blood donors

<table>
<thead>
<tr>
<th>Test Name</th>
<th>Results</th>
<th>Units</th>
<th>Bio. Ref. Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEpatitis E ANTibody (HEV), IgG, Serum (EIA)</td>
<td>0.00</td>
<td>Index</td>
<td>&lt;0.90</td>
</tr>
</tbody>
</table>
**HEPATITIS E ANTIBODY (HEV), IgM, SERUM (EIA)**

Interpretation

<table>
<thead>
<tr>
<th>RESULT (INDEX)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.9</td>
<td>Negative</td>
</tr>
<tr>
<td>0.9-1.1</td>
<td>Equivocal</td>
</tr>
<tr>
<td>&gt; 1.1</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Comments

Hepatitis E Virus (HEV) is an unenveloped RNA virus which accounts for sporadic and epidemic hepatitis in tropical and semi-tropical countries and in people returning from these areas. Similar to HAV, it is enterically transmitted, has a self limiting course and is not associated with chronicity. Infection with HEV has a virulent course in late pregnancy with mortality ranging from 20-25%. HEV IgM antibody is detected 1-4 weeks post infection.
<table>
<thead>
<tr>
<th>Test Name</th>
<th>Results</th>
<th>Units</th>
<th>Bio. Ref. Interval</th>
</tr>
</thead>
</table>

Dr. Ritu Nayar  
MD (Microbiology)  
Deputy HOD Microbiology & Serology

Dr. Shalabh Malik  
MD (Microbiology)  
National Head - Microbiology & Serology

--------------------------------------------End of report--------------------------------------------