NAME	**: Mrs. PRIYANKA**		
AGE/ GENDER	: 34 YRS/FEMALE	**PATIENT ID**	: 1569387
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012408030043**
REFERRED BY	:	**REGISTRATION DATE**	: 03/Aug/2024 01:06 PM
BARCODE NO.	: 01514369	**COLLECTION DATE**	: 03/Aug/2024 01:10PM
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CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

IMMUNOPATHOLOGY/SEROLOGY

TORCH COMPLETE ANTIBODIES PANEL IgG AND IgM: 8

Test Name	Value	Unit	Biological Reference interval
TORCH ANTIBODIES EVALUATION IgG			
TOXOPLASMA ANTIBODIES IgG *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	0.584	IU/mL	NEGATIVE: < 2.0 POSITIVE: > 2.0
RUBELLA ANTIBODIES IgG ***by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)***	**8.954^{H}**	**IU/mL**	**NEGATIVE: < 2.0** **POSITIVE: > 2.0**
CYTOMEGALOVIRUS ANTIBODIES IgG ***by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)***	**11.523^{H}**	**IU/mL**	**NEGATIVE: < 2.0** **POSITIVE: > 2.0**
HERPES SIMPLEX VIRUS 1+2 ANTIBODIES IgG *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	1.85	IU/mL	NEGATIVE: < 2.0 POSITIVE: > 2.0
TORCH ANTIBODIES EVALUATION IgM			
TOXOPLASMA ANTIBODIES IgM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	0.685	IU/mL	NEGATIVE: < 2.0 EQUIVOCAL: 2.0 - 2.60 POSITIVE: > 2.60
RUBELLA ANTIBODIES IgM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	0.845	IU/mL	NEGATIVE: < 2.0 EQUIVOCAL: 2.0 - 3.0 POSITIVE: > 3.0
CYTOMEGALOVIRUS ANTIBODIES IgM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	0.94	IU/mL	NEGATIVE: < 2.0 EQUIVOCAL: 2.0 - 4.2 POSITIVE: > 4.20
HERPES SIMPLEX VIRUS 1+2 ANTIBODIES IgM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	0.64	IU/mL	NEGATIVE: < 2.0 EQUIVOVAL: 2.0 - 4.0 POSITIVE: > 4.0

INTERPRETATION:

TOXOPLASMA:

1. Toxoplasma gondii is a ubiquitous intracellular parasite casuing serious infections in humans and domestic animals. Toxoplasma infection is asymptomatic in vast majority of immunocompetent individuals and is different from toxoplasmosis, the clinical or pathological disease. Latent (chronic infection) ensues in all infected people after resolution of acute phase, due to asymptomatic persistence of parasite. Reactivation of latent infection is usually seen in severely immunocompromised individuals.
2. Acquired Toxoplasmosis is usually asymptomatic and benign in pregnant women. However, the infection acquires a special significance as the parasite may enter the foetal circulation by transplacental route and casuse congenital toxoplasmosis. The risk and severity of congenital

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toxoplasmosis is greatest when acquired during first 3 months of pregnancy. The consequences of congenital toxoplasmosis range from spontaneous abortion and prematurity to generalized and neurological symtoms.

CLINICAL UTILITY OF TOXOPLASMA:

1. Toxoplasma specific IgM develops 2 – 4 weeks after the onset of clinical signs and gradually declines hereafter, disappearing in 3 – 9 months. Therefore, the presence Of IgM and IgA in the absence og IgG or in the presence of low IgG levels is a strong evidence of ACUTE TOXOPLASMOSIS. Conversely, the presence of IgM in the presence of decreasing or constant IgG levels indicates subacute infection.
2. Specific IgG antibodies to Toxoplasma rise gradually and peak 2 – 5 months after the onset of clinical signs. Therefore, the presence of IgG is usefull in distinguishing subjects who have acquired the disease from those who have not. Increased level of toxoplasma specific IgG suggests reactivation of disease. IgG may be falsely negative in immunocompromised patients.
3. Accurate dating of the duration of maternal toxoplasmosis is required in order to assess the risk of subsequent congenital infection. However, positive IgM results are not easy to interpret, because specific IgM has a tendency to persist, even at high levels, after primary infection.

NOTE:

1. FALSE-POSITIVE POSITIVE IgM may occur due to RHEUMATOID FACTOR AND ANTI-NUCLEUR ANTIBODIES.

2. IgG avidity testing is recommended to differentiate between primary infection, IgM persistence and reactivation. A positive IgM accompanied by low-avidity IgG is suggestive of a primary infection, whereas a high-avidity IgG indicates either IgM persistence or reactivation. A low avidity index may also be seen in a proportion of infected persons for month. Hence it is adviced to perform IgM testing initially to point to the need for IgG avidity to avoid misinterpretation of results.

RUBELLA:

Rubella virus, the only member of rubivirus genus, causes rubella (also known as german measles), an acute exanthematous infection of children and adults. The clinical illnss is characterized by rash, fever and lymphadenopathy and can resemble a mild case of measles. The virus also cause arthralgias and occasional encephalitis. Infection is particularly disastrous if contracted during the first 4 months of pregnancy. If not immunologically protected, women infected during pregnancy run a high risk of embryo-foetal damage. Congenital Rubella causes a wide range of severe defects in foetus, including cataract, deafness, hepatosplenomegaly, psychomotor retardation, bone alterations, cardiopathies, neuropathies and diabetes.

TEST UTILITY FOR RUBELLA:

1. IgM antibodies become detectable in a few days after the onset of signs and symptoms and reach peak level in 7 – 10 days. These antibodies persist, but rapidly diminishes in concentration over the next 4 – 5 weeks until the antibody is no longer clinically detectable. While the presence of IgM antibodies suggests current or recent infection, low levels of IgM antibodies may occasionally persist for more than 12 months post-infection or immunization. The presence of IgM antibodies in a new born indicates that the bay was infected during pregnancy because the mother IgM antibodies do not pass to the baby through umbilical cord.
2. Rubella IgG antibody can be formed following rubella infection or after rubella vaccination. A reactive result is consistent with immune status to rubella virus. The presence of IgG antibodies, but not IgM antibodies, in a newborn means that the mothers IgG antibodies have passed to the baby in utero and these antibodies may protect the infant from rubella infection during the initial six months of life.

LIMITATIONS OF RUBELLA:

1. Rubella IgM test results are intended as an aid to the diagnose of active or recent infection. They should however, be interpreted in conjugation with other clinical findings and diagnostic procedures
2. The antibody titre of a single serum specimen cannot be used to determine recent infection. Specimens obtained too early, or too late, during the course of infection, may not demonstrate detectable levels of IgM antibody. Samples collected too early may not have detectable levels of IgG. Paired samples (acute & convalescent) should be collected and tested concurrently to demonstrate seroconversation.

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Test Name	Value	Unit	Biological Reference interval

3. A positive Rubella IgM result may not always indicate a primary acute infection, as IgM has a tendency to persist, even at high levels, after primay infection. FALSE POSITIVE RESULTS MAY ALSO OCCUR DUE TO RHEUMATOID FACTOR AND ANTI-NUCLEUR ANTIBODIES. Hence, IgG avidity testing is recommended to differentiate between primay infection, IgM persistence and reactivation. IgG antibody results should be interpreted in conjugation with clinical evaluation and the and the results of other diagnostic procedures.

CYTOMEGALOVIRUS:

1. Cytomegalovirus (CMV) is a member of the Herpesviridae family and is classified as human herpesvirus Type 5. CMV causes a number of protean disease syndromes in infants as well as adults. Infection is common and reaches most of the population, whereas associated disease is relatively rare. CMV is a recognized cause of mononucleosis and hepatitis amongst normal immune-competent individuals. But it is among the immunosuppresed (immature neonates) organ transplant recipients, AIDS patients) that CMV causes most significant disease, manifesting as hepatitis, retinitis, pneumonitis, encephalitis, colitis etc.
2. The risk of an infected pregnant woman transmitting CMV to the foetus is highest in 3rd trimester and during the birth process(Perinatal infection) .Intrauterine / congenital CMV infections, though less frequently seen than perinatal infections, are responsible for causing severe CMV disease that may be fatal. Such Intauterine/congenital CMV infections are usually seen in infants born to mothers suffering from a primary infection during pregnancy.

TEST UTILITY FOR CYTOMEGALO VIRUS:

1. CMV specific IgM develops a few weeks after acute infection followed by development of IgG about a week later. IgM levels usually increases for some weeks and then decrease slowly in 4 – 6 months. Occassionally, IgM may circulate for years.
2. A positive CMV IgM result may not always indicate a primary acute infection, as IgM has a tendency to persist, even at high levels, after primary infection.FALSE-POSITIVE IgM RESULTS MAY OCCUR DUE TO RHEUMATOID FACTOR AND ANTI-NUCLEAR ANTIBODIES. Hence, IgG avidity testing is recommended to differentiate between primary infection, IgM persistence and reactivation.
3. Avidity is defined as the functional binding strength of antibodies to multiple binding sites (epitopes) on the antigen. The test is based on the principle that antibodies formed in response to primary infection have relatively low avidity to the corresponding antigen. With time, broader antibody response develops with antibodies being formed to more epitopes on the antigen and with the corresponding increase in the antibody antigen avidity. Therefore, when a secondary antibody response occurs with reinfection, it stimulates clonal expansion of memory B cells to a much wider spectrum epitopes, producing antibodies of considerably greater avidity.
4. A positive IgM accompanied by low-avidity IgG is suggestive of a primary infection, whereas a high-avidity IgG indicated either IgM persistence or reactivation. A low avidity index may also be seen in a proportion of infected persons for months. Hence it is adviced to perform IgM testing initially to point to the need for IgG avidity to avoid misinterpretation of results.

LIMITATIONS OF CYTOMEGALO VIRUS TEST:

Samples which are strongly positive for the presence of anti-Varicella Zoster and Ebstein Barr IgM antibodies can give false positive results.Because of all the complications of serological diagnosis of congenital infection, virus isolation from Urine in the first week of life remains the best way to diagnose intrauterine involvement. Absence of CMV specific IgM does not exclude the possibility of CMV infection.About 10 – 30 % of infants may fail to develop CMV IgM antibody response despite congenital infection with CMV.

HERPES SIMPLEX VIRUS (HSV) 1 AND 2:

1. Herpes Simplex Virus (HSV) is a widespread human pathogen with a tendency to induce lifelong latency in the sensory nerve ganglia, following the primary infection. Recurrent HSV infections are common due to endogeneous reactivation of the virus. Precipitating factors for recurrence can include exposure to sunlight, fever , local trauma, trigeminal nerve manipulation, menstruation and emotional stress. HSV-1 and HSV-2 are 2 serologically distinguishable types. Hsv-1 is primarily transmitted by contact with oral secretions and is usually associated with oral infections and lesions above waist. HSV-2, on the other hand, is primarily transmitted by contact with genital secretions and is associated with genital

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Test Name	Value	Unit	Biological Reference interval

infections and lesions below the waist. However the correlation between HSV type and location of the lesion is not absolute. Transmission can occur from overtly infected persons as well as asymptomatic excretors. HSV is known to cause severe generalized and fatal infections in newborns and immunocompromised people.

2. Pregnant women who develop genital hrpes are two-three times more likely to have spontaneous abortions or deliver a premature infant that are pregnant non-infected women. Active virus excreation in genital secretionsof pregnant women may result in severe neonatal HSV infection that is associated with high morbidity and mortality rates if untreated.

TEST UTILITY OF HERPES SIMPLEX VIRUS I AND 2:

HSV specific IgM becomes detectable aftr about 1 week of infection. Presence of IgM usually indicates recent or active recurrent infection. Specific IgG generally appears 2-3 after primary infection, but may fall in titer after a few months. Sero-conversion of HSV-specific IgG from negative to positive also suggests recent or active recurrent infection. However some patients with recurring disease may not show an increase in titer. Detection of IgG allows assessment of patients immune status and provide serological evidence of prior exposure to HSV. *TESTING PAIRED SERA TO DEMONSTRATE SEROCONVERSION IS RECOMMENDED FOR ACCURATE DIAGNOSIS OF RECENT (PRIMARY OR RECURRENT) HSV INFECTION.*

LIMITATIONS OF HERPES SIMPLEX VIRUS 1 AND 2:

Due to high seroprevalence of various community-related infectious disease in the general Indian population, all results must be interpreted in context of the total clinical history and supplementary findings of other investigative procedure. Due to strong serological cross-reactivity between HSV-1 and HSV-2, antibodies produced in response to infection by one virus can cross react with other, through the response to the homologous, i.e, the infection virus is generally greater. For this reason, tsting paired acute/covalescent specimens is useful to show change in antbody activity. Patients with intermediate results should be tested with another sample taken 1-2 weeks after the first, if clinically indicated

*** End Of Report ***

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