

Dr. Vinay Chopra
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Dr. Yugam Chopra
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CEO & Consultant Pathologist

NAME : Mrs. LATIKA CHOPRA
AGE/ GENDER : 35 YRS/FEMALE
COLLECTED BY : SURJESH
REFERRED BY :
BARCODE NO. : 01513390
CLIENT CODE. : KOS DIAGNOSTIC LAB
CLIENT ADDRESS : 6349/1, NICHOLSON ROAD, AMBALA CANTT

PATIENT ID : 1553617
REG. NO./LAB NO. : 012407180050
REGISTRATION DATE : 18/Jul/2024 07:05 PM
COLLECTION DATE : 18/Jul/2024 07:10PM
REPORTING DATE : 18/Jul/2024 07:17PM

Test Name	Value	Unit	Biological Reference interval
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HAEMATOLOGY

COMPLETE BLOOD COUNT (CBC)

RED BLOOD CELLS (RBCS) COUNT AND INDICES


HAEMOGLOBIN (HB) by CALORIMETRIC	11.8 ^L	gm/dL	12.0 - 16.0
RED BLOOD CELL (RBC) COUNT by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE	4.38	Millions/cmm	3.50 - 5.00
PACKED CELL VOLUME (PCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	36.4 ^L	%	37.0 - 50.0
MEAN CORPUSCULAR VOLUME (MCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	83.1	fL	80.0 - 100.0
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	27	pg	27.0 - 34.0
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	32.5	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	14.1	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	43.7	fL	35.0 - 56.0
MENTZERS INDEX by CALCULATED	18.97	RATIO	BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0
GREEN & KING INDEX by CALCULATED	26.81	RATIO	BETA THALASSEMIA TRAIT: < = 65.0 IRON DEFICIENCY ANEMIA: > 65.0

WHITE BLOOD CELLS (WBCS)

TOTAL LEUCOCYTE COUNT (TLC) by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY	9180	/cmm	4000 - 11000
NUCLEATED RED BLOOD CELLS (nRBCS) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER & MICROSCOPY	NIL		0.00 - 20.00
NUCLEATED RED BLOOD CELLS (nRBCS) % by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER & MICROSCOPY	NIL	%	< 10 %

DIFFERENTIAL LEUCOCYTE COUNT (DLC)




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NEUTROPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	70	%	50 - 70
LYMPHOCYTES <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	21	%	20 - 40
EOSINOPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	3	%	1 - 6
MONOCYTES <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	6	%	2 - 12
BASOPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	0	%	0 - 1
<u>ABSOLUTE LEUKOCYTES (WBC) COUNT</u>			
ABSOLUTE NEUTROPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	6426	/cmm	2000 - 7500
ABSOLUTE LYMPHOCYTE COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	1928	/cmm	800 - 4900
ABSOLUTE EOSINOPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	275	/cmm	40 - 440
ABSOLUTE MONOCYTE COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	551	/cmm	80 - 880
ABSOLUTE BASOPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	0	/cmm	0 - 110
<u>PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.</u>			
PLATELET COUNT (PLT) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	246000	/cmm	150000 - 450000
PLATELETCRIT (PCT) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	0.31	%	0.10 - 0.36
MEAN PLATELET VOLUME (MPV) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	12 ^H	fL	6.50 - 12.0
PLATELET LARGE CELL COUNT (P-LCC) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	106000 ^H	/cmm	30000 - 90000
PLATELET LARGE CELL RATIO (P-LCR) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	42.9	%	11.0 - 45.0
PLATELET DISTRIBUTION WIDTH (PDW) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	16.4	%	15.0 - 17.0

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD




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GLYCOSYLATED HAEMOGLOBIN (HbA1c)

GLYCOSYLATED HAEMOGLOBIN (HbA1c): WHOLE BLOOD by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	4.8	%	4.0 - 6.4
ESTIMATED AVERAGE PLASMA GLUCOSE by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	91.06	mg/dL	60.00 - 140.00

INTERPRETATION:

AS PER AMERICAN DIABETES ASSOCIATION (ADA):

REFERENCE GROUP	GLYCOSYLATED HEMOGLOBIN (HbA1c) in %
Non diabetic Adults >= 18 years	<5.7
At Risk (Prediabetes)	5.7 – 6.4
Diagnosing Diabetes	>= 6.5
Therapeutic goals for glycemic control	Age > 19 Years
	Goals of Therapy: < 7.0
	Actions Suggested: >8.0
	Age < 19 Years
	Goal of therapy: <7.5

COMMENTS:

- Glycosylated hemoglobin (HbA1c) test is three monthly monitoring done to assess compliance with therapeutic regimen in diabetic patients.
- Since Hb1c reflects long term fluctuations in blood glucose concentration, a diabetic patient who has recently under good control may still have high concentration of HbA1c. Converse is true for a diabetic previously under good control but now poorly controlled.
- Target goals of < 7.0 % may be beneficial in patients with short duration of diabetes, long life expectancy and no significant cardiovascular disease. In patients with significant complications of diabetes, limited life expectancy or extensive co-morbid conditions, targeting a goal of < 7.0% may not be appropriate.
- High HbA1c (>9.0 -9.5 %) is strongly associated with risk of development and rapid progression of microvascular and nerve complications
- Any condition that shortens RBC life span like acute blood loss, hemolytic anemia falsely lowers HbA1c results.
- HbA1c results from patients with HbSS, HbSC and HbD must be interpreted with caution, given the pathological processes including anemia, increased red cell turnover, and transfusion requirement that adversely impact HbA1c as a marker of long-term glycemic control.
- Specimens from patients with polycythemia or post-splenectomy may exhibit increase in HbA1c values due to a somewhat longer life span of the red cells.





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HAEMOGLOBIN - HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HB-HPLC)


HAEMOGLOBIN VARIANTS

HAEMOGLOBIN A0 (ADULT) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	84.7	%	83.00 - 90.00
HAEMOGLOBIN F (FOETAL) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	< 0.8	%	0.00 - 2.0
HAEMOGLOBIN A2 <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	2.6	%	1.50 - 3.70
PEAK 3 <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	5	%	< 10.0
OTHERS-NON SPECIFIC <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	ABSENT	%	ABSENT
HAEMOGLOBIN S <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN D (PUNJAB) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN E <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN C <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
UNKNOWN UNIDENTIFIED VARIANTS <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
GLYCOSYLATED HAEMOGLOBIN (HbA1c): WHOLE BLOOD <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	4.8	%	4.0 - 6.4

RED BLOOD CELLS (RBCS) COUNT AND INDICES

HAEMOGLOBIN (HB) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	11.8 ^L	gm/dL	12.0 - 16.0
RED BLOOD CELL (RBC) COUNT <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	4.38	Millions/cmm	3.50 - 5.00
PACKED CELL VOLUME (PCV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	36.4 ^L	%	37.0 - 50.0
MEAN CORPUSCULAR VOLUME (MCV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	83.1	fL	80.0 - 100.0




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Test Name	Value	Unit	Biological Reference interval
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	27	pg	27.0 - 34.0
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	32.5	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	14.1	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	43.7	fL	35.0 - 56.0

OTHERS

NAKED EYE SINGLE TUBE RED CELL OSMOTIC FRAGILITY TEST <i>by SINGLE RED CELL OSMOTIC FRAGILITY</i>	NEGATIVE (-ve)		NEGATIVE (-ve)
MENTZERS INDEX <i>by CALCULATED</i>	18.97	RATIO	BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0

INTERPRETATION

THE ABOVE FINDINGS ARE SUGGESTIVE OF NORMAL HAEMOGLOBIN CHROMATOGRAPHIC PATTERN

INTERPRETATION:

The Thalassemia syndromes, considered the most common genetic disorder worldwide, are a heterogenous group of mandelian disorders, all characterized by a lack of/or decreased synthesis of either the alpha-globin chains (alpha thalassemia) or the beta-globin chains (beta thalassemia) of haemoglobin.

HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC):

1.HAEMOGLOBIN VARIANT ANALYSIS, BLOOD- High Performance liquid chromatography (HPLC) is a fast & accurate method for determining the presence and for quantitation of various types of normal haemoglobin and common abnormal hb variants, including but not limited to Hb S, C, E, D and Beta –thalassemia.

2.The diagnosis of these abnormal haemoglobin should be confirmed by DNA analysis.

3.The method use has a limited role in the diagnosis of alpha thalassemia.

4.Slight elevation in haemoglobin A2 may also occur in hyperthyroidism or when there is deficiency of vitamin b12 or folate and this should be distinguished from inherited elevation of HbA2 in Beta- thalassemia trait.

NAKED EYE SINGLE TUBE RED CELL OSMOTIC FRAGILITY TEST (NESTROFT):

1.It is a screening test to distinguish beta thalassemia trait. Also called as Naked Eye Single Tube Red Cell Osmotic Fragility Test.

2.The test showed a sensitivity of 100%, specificity of 85.47%, a positive predictive value of 66% and a negative predictive value of 100%.


3.A high negative predictive value can reasonably rule out beta thalassemia trait cases. So, it should be adopted as a screening test for beta thalassemia trait, as it is not practical or feasible to employ HbA2 in every case of anemia in childhood.


MENTZERS INDEX:

1.The Mentzer index, helpful in differentiating iron deficiency anemia from beta thalassemia. If a CBC indicates microcytic anemia, the Mentzer index is said to be a method of distinguishing between them.

2.If the index is less than 13, thalassemia is said to be more likely. If the result is greater than 13, then iron-deficiency anemia is said to be more likely.




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3.The principle involved is as follows: In iron deficiency, the marrow cannot produce as many RBCs and they are small (microcytic), so the RBC count and the MCV will both be low, and as a result, the index will be greater than 13. Conversely, in thalassemia, which is a disorder of globin synthesis, the number of RBC's produced is normal, but the cells are smaller and more fragile. Therefore, the RBC count is normal, but the MCV is low, so the index will be less than 13.

NOTE: In practice, the Mentzer index is not a reliable indicator and should not, by itself, be used to differentiate. In addition, it would be possible for a patient with a microcytic anemia to have both iron deficiency and thalassemia, in which case the index would only suggest iron deficiency.




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CLINICAL CHEMISTRY/BIOCHEMISTRY

GLUCOSE RANDOM (R)

GLUCOSE RANDOM (R): PLASMA by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)	116.43	mg/dL	NORMAL: < 140.00 PREDIABETIC: 140.0 - 200.0 DIABETIC: > OR = 200.0
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INTERPRETATION

IN ACCORDANCE WITH AMERICAN DIABETES ASSOCIATION GUIDELINES:

1. A random plasma glucose level below 140 mg/dl is considered normal.
2. A random glucose level between 140 - 200 mg/dl is considered as glucose intolerant or prediabetic. A fasting and post-prandial blood test (after consumption of 75 gms of glucose) is recommended for all such patients.
3. A random glucose level of above 200 mg/dl is highly suggestive of diabetic state. A repeat post-prandial is strongly recommended for all such patients. A fasting plasma glucose level in excess of 125 mg/dl on both occasions is confirmatory for diabetic state.



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ENDOCRINOLOGY

THYROID FUNCTION TEST: FREE

FREE TRIIODOTHYRONINE (FT3): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	2.971	pg/mL	1.60 - 3.90
FREE THYROXINE (FT4): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	0.822	ng/dL	0.70 - 1.50
THYROID STIMULATING HORMONE (TSH): SERUM <i>by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)</i>	2.546	μIU/mL	0.35 - 5.50

3rd GENERATION, ULTRA SENSITIVE

INTERPRETATION:

- FT3 & FT4 are metabolic active form of thyroid hormones and correlate much better with clinical condition of the patient as compared to Total T4 levels. High FT3 & FT4 with normal TSH Levels and abnormal thyroid function (Total Thyroid) can occasionally be seen in cases of PERIPHERAL THYROID HORMONE RESISTANCE
- TSH levels are subjected to circadian variation, reaching peak levels between 2-4 a.m and at a minimum between 6-10 pm. The variation is of the order of 50 %. Hence time of the day has influence on the measured serum TSH concentration.

INCREASED TSH LEVELS:

- Primary hypothyroidism is accompanied by depressed serum FT3 & FT4 values and elevated serum TSH levels. Primary or untreated hypothyroidism may vary from 3 times to more than 100 times normal depending upon degree of hypofunction.
- Hypothyroid patients receiving insufficient thyroid replacement therapy.
- Hashimoto's thyroiditis
- DRUGS: Amphetamines, Isoniazid containing agents & dopamine antagonist.
- Neonatal period, increase in 1st 2-3 days of life due to post-natal surge

DECREASED TSH LEVELS:

- Primary hyperthyroidism is accompanied by elevated serum FT3 & FT4 values along with depressed TSH levels.
- Toxic multi-nodular goitre & Thyroiditis.
- Over replacement of thyroid hormone in treatment of hypothyroidism.
- Autonomously functioning Thyroid adenoma
- Secondary pituitary or hypothalamic hypothyroidism
- Acute psychiatric illness
- Severe dehydration.
- DRUGS: Glucocorticoids, Dopamine, Levodopa, T4 replacement therapy, Anti-thyroid drugs for thyrotoxicosis.
- Pregnancy: 1st Trimester

NOTE:

- High FT3 levels accompanied by normal FT4 levels and depressed TSH levels may be seen in T3 thyrotoxicosis, central hypothyroidism occurs due to pituitary or thalamic malfunction
- Secondary & Tertiary hypothyroidism, this relatively rare but important condition is indicated by presence of low serum FT3 and FT4 levels, in conjunction with TSH levels that are paradoxically either low/normal or are not elevated to levels that are expected.




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DUAL MARKER MATERNAL SCREENING

DUAL MARKER TEST

PATEINT SPECIFICATIONS

DATE OF BIRTH	1989-03-10		
MATERNAL AGE	35.88	YEARS	
WEIGHT	68.6	Kg	
ETHNIC ORIGIN	ASIAN		ASIAN
H/O IVF	ABSENT		
H/O SMOKING	ABSENT		
H/O INSULIN DEPENDANT DIABETES	ABSENT		
H/O TRISOMY 21 SCREENING	ABSENT		

ULTRA SOUND SCAN DETAILS

DATE OF ULTRASOUND by ULTRASOUND SCAN	2024-07-18		
METHOD FOR GESTATION AGE ESTIMATION by ULTRASOUND SCAN	ULTRASOUND SCAN DETAILS		
FOETUS (NOS) by ULTRASOUND SCAN	1		
GA ON THE DAY OF SAMPLE COLLECTION by ULTRASOUND SCAN	12.6	WEEKS	
CROWN RUMP LENGTH (CRL) by ULTRASOUND SCAN	65.8	mm	38 - 84
GESTATIONAL AGE BY CRL by ULTRASOUND SCAN	12.6		
NUCHAL TRANSLUCENCY (NT) by ULTRASOUND SCAN	1	mm	0.1 - 6.0
NUCHAL TRANSLUCENCY (NT) MOM by ULTRASOUND SCAN	0.6		

DUAL MARKER - BIOCHEMICAL MARKERS

PREGNANCY ASSOCIATED PLASMA PROTEIN A (PAPP-A) by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)	4011	mIU/L	
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NAME	: Mrs. LATIKA CHOPRA	PATIENT ID	: 1553617
AGE/ GENDER	: 35 YRS/FEMALE	REG. NO./LAB NO.	: 012407180050
COLLECTED BY	: SURJESH	REGISTRATION DATE	: 18/Jul/2024 07:05 PM
REFERRED BY	:	COLLECTION DATE	: 18/Jul/2024 07:10PM
BARCODE NO.	: 01513390	REPORTING DATE	: 19/Jul/2024 12:05AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB		
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
BETA HCG - FREE: SERUM <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	14.55	ng/mL	
<u>MULTIPLE OF MEDIAN (MOM) VALUES</u>			
PAPP-A MOM <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	0.91		
BETA HCG - FREE MOM <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	0.35		
<u>TRISOMY 21 SCREENING (DOWNS SYNDROME) RISK ASSESSMENT</u>			
TRISOMY 21 SCREENING RISK RESULT <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	NEGATIVE (-ve)		NEGATIVE (-ve)
TRISOMY 21 AGE RISK <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	1:353 NEGATIVE (-ve)		
TRISOMY 21 BIOCHEMICAL RISK <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	1:37411 NEGATIVE (-ve)		RISK CUT OFF 1:150
TRISOMY 21 COMBINED RISK (BIOCHEMICAL + NT) <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	< 1:10000 NEGATIVE (-ve)		RISK CUT OFF 1:150
<u>TRISOMY 18 SCREENING RISK ASSESSMENT</u>			
TRISOMY 18 AGE RISK <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	NEGATIVE (-ve)		
TRISOMY 13/18 SCREENING RISK <i>by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)</i>	< 1:10000 NEGATIVE (-ve)		RISK CUT OFF 1:300

INTERPRETATION:

1. Double marker test (maternal serum screen – first trimester) is a prenatal test to screen for Trisomy 21 (down's syndrome) and Trisomy 13/18 during gestational period 8 – 13 weeks.

2. Besides the biochemical markers tested – maternal pregnancy associated plasma protein a (papp-a) & maternal free beta hcg, the risk is calculated combining usg measurement of nuchal translucency (nt), gestational age at the time of sample with other maternal factors as age, weight, h/o diabetes, smoking, race, twin pregnancies, use of assisted reproductive technologies (IVF).

NOTE:

1. This is only screening test based purely on statistical analysis which is further based on the data submitted; hence the correctness of data is vital for risk analysis.


2. A negative screen indicates a lower probability of having a baby with trisomy 21, trisomy 18 and neural tube defects, but does not completely exclude the possibility.

3. A positive screen on the contrary only indicates a higher probability of having a baby with trisomy 21, trisomy 18 and neural tube defects, and needs confirmation by cytogenetic studies and/or level ii scan.

4. The detection rate by this test is about 60%, with 5% false positive rate when assessment is done for only biochemical parameters and increase to 85 % with 5% false positive rate when both biochemical parameters and nt are combined for analysis.

5. Correlation with patient history, family history and detailed USG scan is required to decide further course of action in cases who have high risk statistically calculated by this test.




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Test Name	Value	Unit	Biological Reference interval
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Test Name	Value	Unit	Biological Reference interval
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IMMUNOPATHOLOGY/SEROLOGY
HEPATITIS C VIRUS (HCV) ANTIBODY: TOTAL

HEPATITIS C ANTIBODY (HCV) TOTAL: SERUM	0.09	S/CO	NEGATIVE: < 1.00
by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)			POSITIVE: > 1.00
HEPATITIS C ANTIBODY (HCV) TOTAL	NON - REACTIVE		
RESULT			
by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)			

INTERPRETATION:-

RESULT (INDEX)	REMARKS
< 1.00	NON - REACTIVE/NOT - DETECTED
> =1.00	REACTIVE/ASYMPTOMATIC/INFECTIVE STATE/CARRIER STATE.

Hepatitis C (HCV) is an RNA virus of Favivirus group transmitted via blood transfusions, transplantation, injection drug abusers, 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 population, the predictive value of Anti HCV for HCV infection is > 99% whereas in low risk populations it is only 25 %.

USES:

1. Indicator of past or present infection, but does not differentiate between Acute/ Chronic/Resolved Infection.
2. Routine screening of low and high prevalence population including blood donors.

NOTE:

1. False positive results are seen in Auto-immune disease, Rheumatoid Factor, HYpergammaglobulinemia, Paraproteinemia, Passive antibody transfer, Anti-idiotypes and Anti-superoxide dismutase.
2. False negative results are seen in early Acute infection, Immunosuppression and Immuno— incompetence.
3. HCV-RNA PCR recommended in all reactive results to differentiate between past and present infection.





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Test Name	Value	Unit	Biological Reference interval
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ANTI HUMAN IMMUNODEFICIENCY VIRUS (HIV) DUO ULTRA WITH (P-24 ANTIGEN DETECTION)

HIV 1/2 AND P24 ANTIGEN: SERUM 0.11 S/CO
 by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

NEGATIVE: < 1.00
 POSITIVE: > 1.00

HIV 1/2 AND P24 ANTIGEN RESULT NON - REACTIVE
 by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:-

RESULT (INDEX)	REMARKS
< 1.00	NON - REACTIVE
> = 1.00	PROVISIONALLY REACTIVE

Non-Reactive result implies that antibodies to HIV 1/ 2 have not been detected in the sample . This means that patient has either not been exposed to HIV 1/ 2 infection or the sample has been tested during the "window phase" i.e. before the development of detectable levels of antibodies. Hence a Non Reactive result does not exclude the possibility of exposure or infection with HIV 1/ 2.

RECOMMENDATIONS:

1. Results to be clinically correlated
2. Rarely falsenegativity/positivity may occur.



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REFERRED BY :
BARCODE NO. : 01513390
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CLIENT ADDRESS : 6349/1, NICHOLSON ROAD, AMBALA CANTT

PATIENT ID : 1553617
REG. NO./LAB NO. : 012407180050
REGISTRATION DATE : 18/Jul/2024 07:05 PM
COLLECTION DATE : 18/Jul/2024 07:10PM
REPORTING DATE : 18/Jul/2024 08:23PM

Test Name	Value	Unit	Biological Reference interval
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HEPATITIS B SURFACE ANTIGEN (HBsAg) ULTRA

HEPATITIS B SURFACE ANTIGEN (HBsAg): 0.27 S/CO
SERUM
NEGATIVE: < 1.0
POSITIVE: > 1.0

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

HEPATITIS B SURFACE ANTIGEN (HBsAg) NON REACTIVE
RESULT

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:

RESULT IN INDEX VALUE	REMARKS
< 1.30	NEGATIVE (-ve)
>=1.30	POSITIVE (+ve)

Hepatitis B Virus (HBV) is a member of the Hepadna virus family causing infection 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 adolescent and adults develop Chronic Hepatitis. Frequency of chronic HBV infection is 5-10% in immunocompromised patients and 80 % 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 6 months indicates carrier state or Chronic Liver disease.



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REFERRED BY	:	COLLECTION DATE	: 18/Jul/2024 07:10PM
BARCODE NO.	: 01513390	REPORTING DATE	: 18/Jul/2024 07:41PM
CLIENT CODE.	: KOS DIAGNOSTIC LAB		
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Test Name	Value	Unit	Biological Reference interval
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VDRL by IMMUNOCHROMATOGRAPHY	NON REACTIVE		NON REACTIVE
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INTERPRETATION:

- Does not become positive until 7 - 10 days after appearance of chancre.
- High titer (>1:16) - active disease.**
- Low titer (<1:8) - biological falsepositive test in 90% cases or due to late or late latent syphilis.**
- Treatment of primary syphilis causes progressive decline to negative VDRL within 2 years.
- Rising titer (4X) indicates relapse, reinfection, or treatment failure and need for retreatment.
- May be nonreactive in early primary, late latent, and late syphilis (approx. 25% of cases).
- Reactive and weakly reactive tests should always be confirmed with FTA-ABS (fluorescent treponemal antibody absorption test).**

SHORT TERM FALSE POSITIVE TEST RESULTS (<6 MONTHS DURATION) MAY OCCUR IN:

- Acute viral illnesses (e.g., hepatitis, measles, infectious mononucleosis)
- M. pneumoniae; Chlamydia; Malaria infection.
- Some immunizations
- Pregnancy (rare)

LONG TERM FALSE POSITIVE TEST RESULTS (>6 MONTHS DURATION) MAY OCCUR IN:

- Serious underlying disease e.g., collagen vascular diseases, leprosy, malignancy.
- Intravenous drug users.
- Rheumatoid arthritis, thyroiditis, AIDS, Sjogren's syndrome.
- <10 % of patients older than age 70 years.
- Patients taking some anti-hypertensive drugs.





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Test Name	Value	Unit	Biological Reference interval
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VITAMINS

VITAMIN D/25 HYDROXY VITAMIN D3

VITAMIN D (25-HYDROXY VITAMIN D3): SERUM by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)	54.1	ng/mL	DEFICIENCY: < 20.0 INSUFFICIENCY: 20.0 - 30.0 SUFFICIENCY: 30.0 - 100.0 TOXICITY: > 100.0
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INTERPRETATION:

DEFICIENT:	< 20	ng/mL
INSUFFICIENT:	21 - 29	ng/mL
PREFERRED RANGE:	30 - 100	ng/mL
INTOXICATION:	> 100	ng/mL

- Vitamin D compounds are derived from dietary ergocalciferol (from plants, Vitamin D2), or cholecalciferol (from animals, Vitamin D3), or by conversion of 7- dihydrocholecalciferol to Vitamin D3 in the skin upon Ultraviolet exposure.
- 25-OH--Vitamin D represents the main body resevoir and transport form of Vitamin D and transport form of Vitamin D, being stored in adipose tissue and tightly bound by a transport protein while in circulation.
- Vitamin D plays a primary role in the maintenance of calcium homeostatis. It promotes calcium absorption, renal calcium absorption and phosphate reabsorption, skeletal calcium deposition, calcium mobilization, mainly regulated by parathyroid hormone (PTH).
- Severe deficiency may lead to failure to mineralize newly formed osteoid in bone, resulting in rickets in children and osteomalacia in adults.

DECREASED:

- Lack of sunshine exposure.
- Inadequate intake, malabsorption (celiac disease)
- Depressed Hepatic Vitamin D 25- hydroxylase activity
- Secondary to advanced Liver disease
- Osteoporosis and Secondary Hyperparathroidism (Mild to Moderate deficiency)
- Enzyme Inducing drugs: anti-epileptic drugs like phenytoin, phenobarbital and carbamazepine, that increases Vitamin D metabolism.

INCREASED:

- Hypervitaminosis D is Rare, and is seen only after prolonged exposure to extremely high doses of Vitamin D. When it occurs, it can result in severe hypercalcemia and hyperphosphatemia.

CAUTION: Replacement therapy in deficient individuals must be monitored by periodic assessment of Vitamin D levels in order to prevent hypervitaminosis D

NOTE:-Dark coloured individuals as compare to whites, is at higher risk of developing Vitamin D deficiency due to excess of melanin pigment which interfere with Vitamin D absorption.




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CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
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VITAMIN B12/COBALAMIN

VITAMIN B12/COBALAMIN: SERUM
125^L
pg/mL
190.0 - 890.0

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:-

INCREASED VITAMIN B12	DECREASED VITAMIN B12
1.Ingestion of Vitamin C	1.Pregnancy
2.Ingestion of Estrogen	2.DRUGS:Aspirin, Anti-convulsants, Colchicine
3.Ingestion of Vitamin A	3.Ethanol lgestion
4.Hepatocellular injury	4. Contraceptive Harmones
5.Myeloproliferative disorder	5.Haemodialysis
6.Uremia	6. Multiple Myeloma

1.Vitamin B12 (cobalamin) is necessary for hematopoiesis and normal neuronal function.
 2.In humans, it is obtained only from animal proteins and requires intrinsic factor (IF) for absorption.
 3.The body uses its vitamin B12 stores very economically, reabsorbing vitamin B12 from the ileum and returning it to the liver; very little is excreted.
 4.Vitamin B12 deficiency may be due to lack of IF secretion by gastric mucosa (eg, gastrectomy, gastric atrophy) or intestinal malabsorption (eg, ileal resection, small intestinal diseases).
 5.Vitamin B12 deficiency frequently causes macrocytic anemia, glossitis, peripheral neuropathy, weakness, hyperreflexia, ataxia, loss of proprioception, poor coordination, and affective behavioral changes. These manifestations may occur in any combination; many patients have the neurologic defects without macrocytic anemia.
 6.Serum methylmalonic acid and homocysteine levels are also elevated in vitamin B12 deficiency states.
 7.Follow-up testing for antibodies to intrinsic factor (IF) is recommended to identify this potential cause of vitamin B12 malabsorption.
NOTE:A normal serum concentration of vitamin B12 does not rule out tissue deficiency of vitamin B12. The most sensitive test for vitamin B12 deficiency at the cellular level is the assay for MMA. If clinical symptoms suggest deficiency, measurement of MMA and homocysteine should be considered, even if serum vitamin B12 concentrations are normal.

*** End Of Report ***



[Signature]

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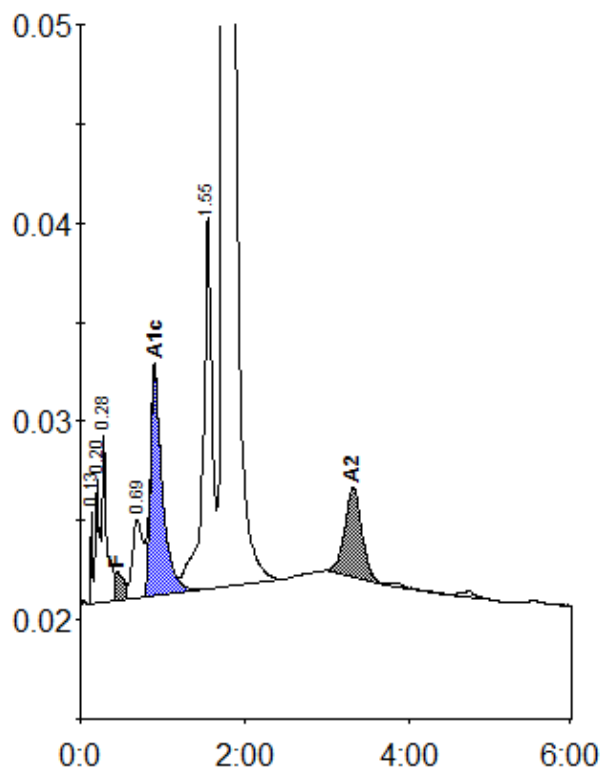
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Patient report

Bio-Rad
D-10
S/N: #DJ6F040603
Sample ID:
Injection date
Injection #: 7
Rack #: ---

DATE: 07/18/2024
TIME: 05:25 PM
Software version: 4.30-2
01513390
07/18/2024 05:19 PM
Method: HbA2/F
Rack position: 7



Peak table - ID: 01513390

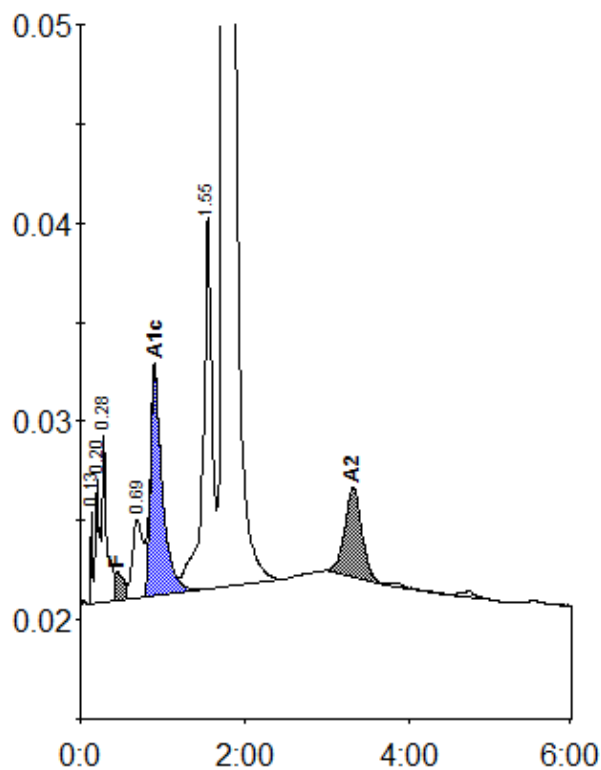
Peak	R.time	Height	Area	Area %
Unknown	0.13	4608	5962	0.2
A1a	0.20	6195	22985	0.8
A1b	0.28	8353	30938	1.1
F	0.45	1425	19852	< 0.8 *
LA1c/CHb-1	0.69	3957	33575	1.2
A1c	0.90	11544	115976	4.8
P3	1.55	18798	144804	5.0
A0	1.74	509660	2430210	84.7
A2	3.32	4487	65747	2.6
Total Area:	2870049			

Concentration:	%
F	< 0.8 *
A1c	4.8
A2	2.6

Patient report

Bio-Rad
D-10
S/N: #DJ6F040603
Sample ID:
Injection date
Injection #: 7
Rack #: ---

DATE: 07/18/2024
TIME: 05:25 PM
Software version: 4.30-2
01513390
07/18/2024 05:19 PM
Method: HbA2/F
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Peak table - ID: 01513390

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A2	3.32	4487	65747	2.6
Total Area:	2870049			

Concentration:	%
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A1c	4.8
A2	2.6