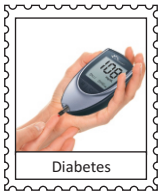
Continuous Quality Improvement

Excellence in the field of Pathology and Laboratory Medicine Since 1982

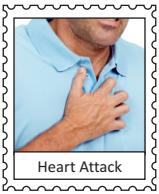
Basic Information

About Common Health Challenges, Available Preventive Health Profiles & Disease-Related Tests


Diabetes


High BP


Obesity

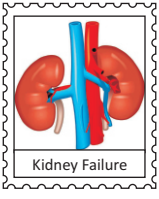

Heart Attack


Hypothyroid


Vit D Def

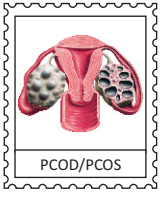

Vit B12 Def


Allergy

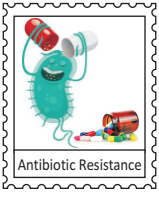

Kidney Failure


Liver Damage


Joint Pains


PCOD/PCOS


Food Intolerance


Antibiotic Resistance


Cancer

98732 47824
95829 15950
8.30 am - 5:30 pm
Sunday Closed

NDPC
North Delhi Pathology Clinic
27/5, Shakti Nagar, Delhi-110007
Specimen: 8:30 AM to 1:00 PM | Report: 5:00 to 5:30 PM
Email : ndpcreport@gmail.com Website : www.ndpc.in
Landline : 23841122, 23841144 & 23841166

Jul2021

Contents

Preventive Health Profiles

Ageing Gracefully

All of us are aware that it is crucial to lead a HEALTHY & HAPPY LIFESTYLE. We understand the importance of leading a regulated lifestyle for which CONTROL, DISCIPLINE & PATIENCE are a requirement.

Patients have complete confidence in their DOCTORS and have trust that the treatment prescribed will cure them. However, we should not forget that a doctor may treat the disease and save a life but may not return the happiness in life. Those of us, who have already suffered severe illnesses, well understand the value of the age-old saying, "Prevention is better than Cure."

Examples of common HEALTH CHALLENGES are **Diabetes, High Blood Pressure, Heart attack and Strokes, Obesity, Joint Pains, Arthritis, Thyroid Disorders, Osteoporosis, PCOD, Allergy, Food Intolerance, Celiac Disease, Vitamin D Deficiency, Vitamin B12 Deficiency, Iron Deficiency, Cancer, Dementia, Cataract** etc. The incidence of all of these disorders increases rapidly with ageing. Most of the conditions mentioned above can be avoided or delayed by making LIFESTYLE CHANGES and adding certain SUPPLEMENTS to the diet.

We at North Delhi Pathology Clinic have a few Preventive Health Profiles consisting of various Blood and Urine tests, which may help Physician DETECT most of 'silent' diseases EARLY and monitor the ageing process somewhat objectively.

Available Preventive Profiles

- **Executive Profile** A Basic Health Profile
- **Diabetic Profile For 30+** For persons having Diabetes
- **High Blood Pressure Profile For 30+** For persons having High BP
- ☑ **Comprehensive Profile** For persons having Diabetes, High BP &/or are Overweight
- **Comprehensive Profile For 50+ for Men**
- **Comprehensive Profile For 50+ Women**
- **Comprehensive Profile For 65+**

Please Note

Patients are expected to come to the laboratory in a Fasting state (10 to 12 hours after dinner). They will have to submit a Blood and a Urine sample. Test reports will be ready by the evening and can be sent by e-mail on request. Hard copy of the report can be collected between 5 pm and 5:30 pm. **Patients should consult their treating Physician for interpretation, further investigations and management.**

Most Important: Laboratory results must be interpreted by treating physicians only.
Self-interpretation and self-medication by patients are strongly discouraged.

Preventive Health Profiles (Contd.)

30+ Executive Health Profile

Basic Annual Check up

This Profile consists of **Important tests** covering practically **all parts of your body including Iron and Thyroid Function Tests:**

Diabetes
01 Bl. Glucose Fasting
Kidney Function Tests
02 S. Urea
03 S. Creatinine
04 S. Uric Acid
05 S. Sodium
06 S. Potassium
07 S. Chloride
Liver Function Tests
08 S.Total Bilirubin
09 S. Direct Bilirubin
10 S.Indirect Bilirubin
11 SGOT
12 SGPT
13 SGGTP
14 S Alk Phos
15 S. Proteins
16 S. Globulin
17 S. Albumin
18 A/ G Ratio
Bones, Joints & Muscles
19 S. Calcium
20 S. Phosphorus
21 S. LDH
Lipid Profile/Heart
22 S. Cholesterol
23 S. Triglyceride
24 S. HDL Chol
25 S. Non HDL Chol
26 S. LDL Chol
27 S. VLDL Chol
28 Total/HDL Chol
29 HDL/LDL Chol
30 CRP
Complete Blood Counts
31 TLC
32 DLC
33 TRBC Count
34 Platelet Count
35 Hemoglobin
36 PCV
37 RDW
38 MCV
39 MCHC
40 MCH
41 ESR
42 S. Iron
Thyroid Function Tests
43 Free T3
44 Free T4
45 TSH
46 Urine Routine

30+ Diabetic Profile

For **Diabetics**

This Profile consists of **Important tests** covering practically **all parts of your body including Iron, Thyroid Function Tests, HbA1c and Microalbumin levels:**

Diabetes
01 Bl. Glucose Fasting
02 HbA1c
03 Microalbumin
Kidney Function Tests
04 S. Urea
05 S. Creatinine
06 S. Uric Acid
07 S. Sodium
08 S. Potassium
09 S. Chloride
Liver Function Tests
10 S.Total Bilirubin
11 S. Direct Bilirubin
12 S.Indirect Bilirubin
13 SGOT
14 SGPT
15 SGGTP
16 S Alk Phos
17 S. Proteins
18 S. Globulin
19 S. Albumin
20 A/ G Ratio
Bones, Joints & Muscles
21 S. Calcium
22 S. Phosphorus
23 S. LDH
Lipid Profile/Heart
24 S. Cholesterol
25 S. Triglyceride
26 S. HDL Chol
27 S. Non HDL Chol
28 S. LDL Chol
29 S. VLDL Chol
30 Total/HDL Chol
31 HDL/LDL Chol
32 CRP
Complete Blood Counts
33 TLC
34 DLC
35 TRBC Count
36 Platelet Count
37 Hemoglobin
Absolute Values
38 PCV
39 RDW
40 MCV
41 MCHC
42 MCH
43 ESR
44 S. Iron
Thyroid Function Tests
45 Free T3
46 Free T4
47 TSH
48 Urine Routine



Preventive Health Profiles (Contd.)

30+ High Blood Pressure Profile

For **High Blood Pressure** Patients

This Profile consists of **Important tests** covering practically **all parts of your body, including Iron, Thyroid Function Tests & BP related Homocysteine level :**

Diabetes
01 Bl. Glucose Fasting
Kidney Function Tests
02 S. Urea
03 S. Creatinine
04 S. Uric Acid
05 S. Sodium
06 S. Potassium
07 S. Chloride
Liver Function Tests
08 S.Total Bilirubin
09 S. Direct Bilirubin
10 S.Indirect Bilirubin
11 SGOT
12 SGPT
13 SGGTP
14 S Alk Phos
15 S. Proteins
16 S. Globulin
17 S. Albumin
18 A/ G Ratio
Bones, Joints & Muscles
19 S. Calcium
20 S. Phosphorus
21 S. LDH
Lipid Profile/Heart
22 S. Cholesterol
23 S. Triglyceride
24 S. HDL Chol
25 S. Non HDL Chol
26 S. LDL Chol
27 S. VLDL Chol
28 Total/HDL Chol
29 HDL/LDL Chol
30 CRP
31 Homocysteine
Complete Blood Counts
32 TLC
33 DLC
34 TRBC Count
35 Platelet Count
36 Hemoglobin
37 PCV
38 RDW
39 MCV
40 MCHC
41 MCH
42 ESR
43 S. Iron
Thyroid Function Tests
44 Free T3
45 Free T4
46 TSH
47 Urine Routine

30+ Comprehensive Profile

For **Diabetics, High BP &/or Overweight persons**

This Profile consists of **Important tests** covering practically **all parts of your body, including Iron, Thyroid Function Tests, Allergy Screening (IgE) & Special Tests: Homocysteine, HbA1c, Microalbumin, PTH , Vitamin D & Vitamin B12 levels.**

Diabetes
01 Bl. Glucose Fasting
02 HbA1c
03 Microalbumin
Kidney Function Tests
04 S. Urea
05 S. Creatinine
06 S. Uric Acid
07 S. Sodium
08 S. Potassium
09 S. Chloride
Liver Function Tests
10 S.Total Bilirubin
11 S. Direct Bilirubin
12 S.Indirect Bilirubin
13 SGOT
14 SGPT
15 SGGTP
16 S Alk Phos
17 S. Proteins
18 S. Globulin
19 S. Albumin
20 A/ G Ratio
Bones, Joints & Muscles
21 S. Calcium
22 S. Phosphorus
23 S. LDH
24 PTH
Lipid Profile/Heart
25 S. Cholesterol
26 S. Triglyceride
27 S. HDL Chol
28 S. Non HDL Chol
29 S. LDL Chol
30 S. VLDL Chol
31 Total/HDL Chol
32 HDL/LDL Chol
33 CRP
34 Homocysteine
Hemogram/CBC
35 TLC
36 DLC
37 TRBC Count
38 Platelet Count
39 Hemoglobin
40 PCV
41 RDW
42 MCV
43 MCHC
44 MCH
45 ESR
46 S. Iron
Thyroid Fn. Tests
47 Free T3
48 Free T4
49 TSH
Vitamins
50 Vitamin D
51 Vitamin B12
Allergy Screening
52 IgE
53 Urine Routine



Health Check

Preventive Health Profiles (Contd.)

50+ Comprehensive Profile for 50+

A Profile consisting of Routine & Special tests for **50+**

This profile is suggested for **persons over 50.** Besides other tests it consists of **Allergy Screening :IgE, Testosterone (men), Two Vitamins: D & B12 and relevant Cancer Markers: PSA- Total & Free & AFP (men) and CA-125 & AFP (women).**

Diabetes
01 Bl. Glucose Fasting
02 HbA1c
03 Microalbumin

Kidney Function Tests
04 S. Urea
05 S. Creatinine
06 S. Uric Acid
07 S. Sodium
08 S. Potassium
09 S. Chloride

Liver Function Tests
10 S.Total Bilirubin
11 S. Direct Bilirubin
12 S.Indirect Bilirubin
13 SGOT
14 SGPT
15 SGGTP
16 S Alk Phos
17 S. Proteins
18 S. Globulin
19 S. Albumin
20 A/ G Ratio

Bones, Joints & Muscles
21 S. Calcium
22 S. Phosphorus
23 S. LDH

Lipid Profile/Heart
24 S. Cholesterol
25 S. Triglyceride
26 S. HDL Chol
27 S. Non HDL Chol
28 S. LDL Chol
29 S. VLDL Chol
30 Total/HDL Chol
31 HDL/LDL Chol
32 CRP
33 Homocysteine

Hemogram/Complete Blood Count
34 TLC
35 DLC
36 TRBC Count
37 Platelet Count
38 Hemoglobin
39 PCV
40 RDW
41 MCV
42 MCHC
43 MCH
44 ESR

Hormones
45 Free T3
46 Free T4
47 TSH
48 PTH
49 Testosterone (Men)

Cancer Markers
50 CA 125 (women)
50a PSA T & F (Men)
51 AFP (Both)

Vitamins etc.
52 Vitamin D
53 Vitamin B12
54 S. Iron

Allergy Screening
55 IgE
56 Urine Routine

65+ Comprehensive Profile for 65+

A Profile consisting of Routine & Special tests for **65+**

This profile is suggested for **persons who are 65 +.** Besides all tests included in **Comprehensive 50+ profile, an additional NT ProBNP estimation (useful in screening for heart failure) is performed.**

Diabetes
01 Bl. Glucose Fasting
02 HbA1c
03 Microalbumin

Kidney Function Tests
04 S. Urea
05 S. Creatinine
06 S. Uric Acid
07 S. Sodium
08 S. Potassium
09 S. Chloride

Liver Function Tests
10 S.Total Bilirubin
11 S. Direct Bilirubin
12 S.Indirect Bilirubin
13 SGOT
14 SGPT
15 SGGTP
16 S Alk Phos
17 S. Proteins
18 S. Globulin
19 S. Albumin
20 A/ G Ratio

Bones, Joints & Muscles
21 S. Calcium
22 S. Phosphorus
23 S. LDH

Lipid Profile/Heart
24 S. Cholesterol
25 S. Triglyceride
26 S. HDL Chol
27 S. Non HDL Chol
28 S. LDL Chol
29 S. VLDL Chol
30 Total/HDL Chol
31 HDL/LDL Chol
32 CRP
33 Homocysteine

Hemogram/Complete Blood Count
34 TLC
35 DLC
36 TRBC Count
37 Platelet Count
38 Hemoglobin
39 PCV
40 RDW
41 MCV
42 MCHC
43 MCH
44 ESR

Heart Failure
45 NT ProBNP

Hormones
46 Free T3
47 Free T4
48 TSH
49 PTH
50 Testosterone (Men)

Cancer Markers
51 CA 125(Women)
51a PSA T & F (Men)
52 AFP (Both)

Vitamins etc.
53 Vitamin D
54 Vitamin B12
55 S. Iron

Allergy Screening
56 IgE
57 Urine Routine

Discipline wise List of Tests

Clinical Biochemistry

5 Alpha DHT, Serum
ACE, Serum
ADA-MTB, Body Fluids
ADA-MTB, Serum
Albumin, Serum
Alk. Phosphatase, Serum
Alpha Feto Protein, Serum
AMH, Serum
Ammonia, Plasma
Amylase, Body Fluid
Amylase, Serum
ANA-ENA Profile, Serum
Androstenedione, Serum
ANA (Elisa), Serum
Anti ANCA, Serum
Anti Cardiolipin-IgG, Serum
Anti Cardiolipin-IgM, Serum
Anti CCP, Serum
Anti DGP IgG, Serum
Anti ds DNA, Serum
Anti Gliadin IgA, Serum
Anti Thyroglobulin, Serum
Anti TPO, Serum
Anti TTG-IgA, Serum
Apo A1, Serum
Apo B, Serum
Bilirubin-Direct, Serum
Bilirubin-Total, Serum
CA 125, Serum
CA 15.3, Serum
CA 19.9, Serum
Calcium Ionic, Serum
Calcium Total, Urine
Calcium Total, Serum
Carbamazepine, Serum
CEA, Serum
Ceruloplasmin, Serum
Chloride, Serum
Cholesterol, Serum
CK, Serum
CK MB Mass, Serum
Complement 3- C3, Serum
Complement 4- C4, Serum
Cortisol Level, Serum
Cortisol Level, Urine
C-Peptide, Serum
C Reactive Protein, Serum
Creatinine, Serum
Creatinine, Urine
Creatinine Clearance
DHEA-S, Serum
Electrophoresis-Protein, Serum
Endomysium IgA, Serum
Ferritin, Serum
Food Intolerance IgG, Blood
Free Beta HCG, Serum
Free T3, Serum
Free T4, Serum
FSH, Serum
Gamma G T, Serum
Glucose, Plasma, Body Fluid
GOT-AST, Serum
GPT-ALT, Serum
Growth Hormone, Serum
GTT, Blood & Urine

Dimension EXL 200
Integrated Chemistry System

COBAS e411
Immunoassay System

AVL 9180
Electrolyte Analyzer

BTS 350
Chemistry Analyzer

HumaReader
Elisa Reader

Discipline wise List of Tests (contd.)

Clinical Biochemistry

hs C Reactive Protein, Serum
Hemoglobin A1c, Blood
HCG Beta, Serum
HDL Cholesterol, Serum
Homocysteine, Serum
IgE, Serum
IL-6, Serum
Immunoglobulin-IgA, Serum
Immunoglobulin-IgG, Serum
Immunoglobulin-IgM, Serum
Instant Glucose, Blood
Insulin, Serum
Iron, Serum
LDH, Body Fluid
LDH, Serum
LH, Serum
Lipase, Serum
Lithium, Serum
Lp (a), Serum
Magnesium, Serum
Microalbumin, Urine
NT-Pro BNP, Serum
Oestradiol (E2), Serum
Osmolality, Serum
Osmolality, Urine
PAPP-A, Serum
Parathyroid Hormone, Serum
Phenobarbital, Serum
Phenytoin, Serum
Phosphorus, Serum
Phosphorus, Urine
Porphobilinogen, Urine
Potassium, Serum
Potassium, Urine
Procalcitonin, Serum
Prog 17-OH, Serum
Progesterone, Serum
Prolactin, Serum
Protein, Urine
PSA-Total, Serum
PSA-Free, Serum
SHBG, Serum
Sodium, Serum
Sodium, Urine
Specific IgE Panel-Air, Serum
Specific IgE Panel-Food, Serum
Testosterone-Free, Serum
Testosterone-Total, Serum
TIBC, Serum
Total Protein, Serum,Body Fluid
Triglyceride, Serum
hs Troponin I, Serum
TSH, Serum
UE3 (Unconj Estriol), Serum
Urea, Serum
Urea, Urine
Uric Acid, Serum
Uric Acid, Urine
Valproic Acid, Serum
Vitamin B12, Serum
Vitamin D Total, Serum

Mini Vidas
Immunoassay System

BioRad D-10
HB Chromatography System

Nephstar
Nephlometer

BioRad ID
Centrifuge

Sysmex CA 50
Coagulation System

Discipline wise List of Tests (contd.)

Hematology

AEC, Blood
APTT/ PTT/ PTTK, Plasma
Blood Group
Bone Marrow Examination
Clot Retraction Time, Blood
Coombs Test - Indirect
Coombs Test -Direct
D Dimer, Plasma
DLC, Blood
ESR-WG, Blood
FDP, Plasma
G6PD, Blood
Hemoglobin, Blood
HB Chromatography (HBA2)
Hemoglobin F, Blood
LAC, Plasma
Malaria Antigen PV PF
Malaria Parasite, Blood
MCH, Blood
MCHC, Blood
MCV, Blood
Microfilaria, Blood Smear
MPV, Blood
Osmotic Fragility, Blood
PCV/HCT, Blood
PDW, Blood
Peripheral Smears Exam
Platelet Count, Blood
IPF - Immature Platelet Fraction
Prothrombin Time, Plasma
RDW, Blood
Reticulocyte Count, Blood
Retic He, Blood
TLC, Blood
TRBC Ct, Blood
NRBC Ct, Blood

Clinical Pathology

Aldehyde Test, Serum
Bence Jones Proteins, Urine
Bilirubin, Urine
Fructose, Semen
Ketone, Urine
Mantoux Test, I/D Test
Occult blood, Stool
Pregnancy Test, Urine
Routine, Urine
Routine, Stool
Semen Examination, Semen
Urobilinogen, Urine
Fecal Calprotectin, Stool

Cytopathology

Cytology Routine, Body Fluid
FNAC, Aspirate
Pap Smear

Sysmex XN 350
Automated Hematology Analyzer

Sysmex XN 1000
Automated Hematology Analyzer

Qwik Check Gold
Sperm/ Semen Quality Analyzer

VESMATIC 20
Automated ESR Analyzer

Discipline wise List of Tests (contd.)

Infectious Serology

Amoebic Serology, Serum
ANA (IIF), Serum
Anti HAV-IgM, Serum
Anti HBc-IgM, Serum
Anti HBe, Serum
Anti HBs, Serum
Anti HCV-IgG, Serum
Anti HEV-IgM, Serum
ASO Titre, Serum
Chikungunya, Serum
CMV-IgG, Serum
CMV-IgM, Serum
COV-2-S IgG Abs Quant, Serum
Cysticercosis, Serum
Dengue NS1 Antigen, Serum
Dengue Serology IgM, Serum
Dengue Serology IgG, Serum
H.Pylori-IgG, Serum
HBeAg, Serum
HBsAg, Serum
HIV Screening, Serum
HSV-IgG, Serum
HSV-IgM, Serum
QuantiFERON TB Gold, Blood
Rheumatoid Factor, Serum
RPR, Serum
Rubella-IgG, Serum
Rubella-IgM, Serum
T P H A, Serum
Toxoplasma-IgG, Serum
Toxoplasma-IgM, Serum
Typhi-IgM/IgG, Serum
Varicella zoster IgG, Serum
Widal, Serum

Molecular

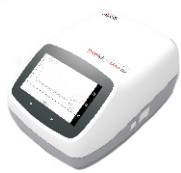
Chikungunya PCR, Plasma
HCV-RNA, Plasma
HIV-1-RNA, Plasma
HBV-DNA, Plasma
HLA B27, Blood
Xpert MTB/RIF, Site Specific Sample
H1N1, Nasal Swab

Microbiology

AFB Stain, Pus
AFB Stain, Sputum
Albert Stain, Throat Swab
C & S, Stool
C & S, Pus
C & S, Aspirate
C & S, Body Fluids
C & S, Blood-Rapid, Blood
C & S, Conjunctival Swab
C & S, Throat Swab
C & S, Urine
Fungus KOH Prep., Nails etc
Fungus KOH Prep., Skin etc
Meth. Blue Stain for Fungus, Fluid / Aspirate etc.
Gram Stain, Pus
Gram Stain, Sputum
Mycobacterium C & S, Pus
Mycobacterium C & S, Sputum

VITEK 2 Compact
Automated ID/AST Instrument

BacT ALERT
Microbial Growth Detection System



TrueLab UNO Dx
CBNAAT System

GeneXpert
State of Art CBNAAT System

Cobas u 411
Automated Urine Analyzer

Available Disease Related Tests

Allergies:

Overreaction of Immune system against harmless substance - Inhalation or Food allergen

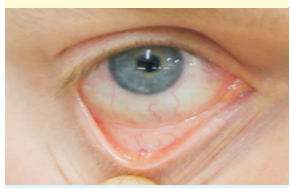
- ☐ Hemogram
- ☐ AEC
- ☐ IgE
- ☐ Specific IgE Panels:
- ☐ - Inhalation (20 items)
- ☐ - Food (40 items)

Amenorrhoea:

Absence of a woman's menstrual period during her reproductive age

- ☐ Complete Blood Counts
- ☐ Prolactin
- ☐ LH
- ☐ FSH
- ☐ Estradiol
- ☐ TSH
- ☐ Testosterone - Total
- ☐ Testosterone - Free
- ☐ DHEA-S

Anemia Panel:



Low hemoglobin levels, resulting in pallor & weakness.

- ☐ Complete Blood Counts
- ☐ ESR
- ☐ Reticulocyte Count
- ☐ PBS
- ☐ Iron & TIBC
- ☐ Ferritin
- ☐ TSH
- ☐ Vitamin B12
- ☐ Folic Acid
- ☐ HB Chromatography
- ☐ Stool Occult Blood

Arthritis/Joint Pain:

Disease/ Deficiencies causing painful inflammation and stiffness of the joints

- ☐ Hemogram (CBC with ESR)
- ☐ Blood Glucose
- ☐ Uric Acid
- ☐ Rheumatoid Factor
- ☐ Anti CCP
- ☐ CRP
- ☐ ASO
- ☐ Calcium
- ☐ Phosphorus
- ☐ Alk. Phosphatase
- ☐ Vitamin D
- ☐ PTH
- ☐ ANA-IIF
- ☐ ANA/ENA Profile 17 Antigens
- ☐ HLA B27

Cancer Markers:

A definite diagnosis of Cancer can be made by Microscopic examination of Biopsy- slide, Fine Needle Aspiration Cytology or smear examination of discharge (Pap Smear). However, following Cancer markers may be helpful in diagnosing and monitoring a few Cancers- the disease caused by the uncontrolled division of abnormal cells.

- ☐ CA-125 (Ovary/Endomet)
- ☐ CA-19.9 (Liver, Gall Bladder, Pancreas, Gastrointestinal)
- ☐ CA-15.3 (Breast)
- ☐ PSA Total & Free (Prostate)
- ☐ hCG (Embryo/Testis)
- ☐ AFP (HC & GC)
- ☐ CEA (Breast, GI)
- ☐ M-Band (Myeloma)

Celiac Disease Screening:

Screening for a disease which presents especially in children as bloating, diarrhea, constipation & pain in the abdomen, leading to failure to thrive, irritability and behavioral issues

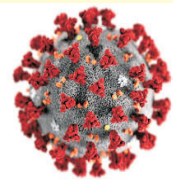
- ☐ Anti tTG IgA
- ☐ IgA
- ☐ Anti DGP IgG
- ☐ Endomysial Abs IgA

Coagulation Screening:

Tests for the factors associated with a bleeding problem.

- ☐ CBC with Platelet Count
- ☐ Immat. Platelet Fraction-IPF
- ☐ Prothrombin Time
- ☐ APTT
- ☐ D Dimer

COVID Related:



Monitoring:

- ☐ Hemogram
- ☐ CRP
- ☐ D Dimer
- ☐ IL-6
- ☐ S. Ferritin
- ☐ LDH

Follow up:

- ☐ **COVID Abs-Quantitative**

Quantitative Detection of Antibodies to SARS-CoV-2 spike protein

Diabetes Evaluation:

Detection, evaluation and monitoring of Diabetes- a disease in which the body cannot control the level of sugar

- ☐ Diabetic Profile
- ☐ HOMA Score
- ☐ Insulin Fasting & PP
- ☐ C-Peptide

Available Disease Related Tests (contd.)

DIC:

Condition in which blood clots form throughout the body blocking small blood vessels

- ☐ Complete Blood Counts
- ☐ Prothrombin Time
- ☐ APTT
- ☐ FDP
- ☐ D Dimer

Fever Related-Basic:

Abnormally high body temperature

- ☐ Complete Blood Counts
- ☐ CRP
- ☐ Malaria Antigen
- ☐ Typhi IgM
- ☐ Typhi IgG
- ☐ SGPT
- ☐ Urine Routine
- ☐ NS1 Antigen for Dengue
- ☐ Blood Culture (optional)

Fever Related-Detailed:

Persistent High Fever

- ☐ CBC with ESR
- ☐ CRP
- ☐ Typhi IgM & IgG
- ☐ Widal
- ☐ Malaria Antigen
- ☐ SGPT
- ☐ Urine Routine
- ☐ Urine C & S
- ☐ Blood C & S
- ☐ Chikungunya PCR
- ☐ Dengue NS1
- ☐ Dengue Serology IgM / IgG
- ☐ Procalcitonin
- ☐ Flu : H1N1
- ☐ IL-6

Food Intolerance:

To evaluate Food Intolerance (IgG antibodies) against various food items which may lead to Irritable Bowel Syndrome-Bloating of abdomen, tiredness for no apparent reason or headache

- ☑ Cereals (8 items)
- ☑ Nuts & Beans (7 items)
- ☑ Vegetables (10 items)
- ☑ Fruits (6 items)
- ☑ Milk & Poultry (3 items)
- ☑ Fish & Meat (8 items)
- ☑ Pulses (4 items)

Heart Attack/Failure:

Sudden occurrence of coronary thrombosis which damages heart muscles and can sometimes be fatal

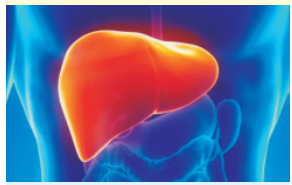
- ☐ HS Troponin-I
- ☐ NT Pro BNP
- ☐ CPK & CPK-MB (mass)
- ☐ SGOT
- ☐ LDH
- ☐ CRP

Hemolysis:

To ascertain cause of destruction of red blood cells

- ☐ Complete Blood Counts
- ☐ Reticulocyte count
- ☐ Immature Platelet Fraction
- ☐ Bilirubin-Total
- ☐ Bilirubin-Direct
- ☐ HB Chromatography
- ☐ Coomb's Test
- ☐ LDH
- ☐ G6PD
- ☐ Plasma/Urinary HB
- ☐ Osmotic Fragility

Hepatitis: Screening



To ascertain the cause of Viral Hepatitis (inflammation of the liver)

- ☐ Liver Function Tests
- ☐ Anti HAV IgM
- ☐ HbsAg
- ☐ Anti HCV-IgG
- ☐ Anti HEV-IgM

Hepatitis: 'B' Work up

Evaluation of Blood Borne Hepatitis B which may be of serious nature

- ☐ Liver Function Tests
- ☐ Complete Blood Counts
- ☐ HbsAg
- ☐ Anti HBs
- ☐ Anti HBc-IgM
- ☐ HbeAg
- ☐ Anti Hbe
- ☐ HBV (Viral load)

Hepatitis: Enteric

Evaluation of Water Borne Hepatitis which are endemic and may be of serious nature

- ☐ Liver Function Tests
- ☐ Anti HAV-IgM
- ☐ Anti HEV-IgM

Hepatitis: Blood Borne

Evaluation of Blood Borne Hepatitis B and Hepatitis C which are of serious nature

- ☐ Liver Function Tests
- ☐ Complete Blood Counts
- ☐ HbsAg
- ☐ Anti HBc-IgM
- ☐ Anti HCV-IgG
- ☐ HBV (Viral Load)
- ☐ HCV (Viral Load)

Hepatitis: Immune Status

To ascertain immunization status of Hepatitis A and B

- ☐ Anti HAV-IgM
- ☐ Anti Hbs (Quantitative)

Available Disease Related Tests (contd.)

Hirsutism:

Abnormal growth of hair on a woman's face and body

- ☐ Prolactin
- ☐ LH
- ☐ FSH
- ☐ HOMA Score
- ☐ Insulin Fasting
- ☐ Insulin PP
- ☐ Testosterone- Total
- ☐ Testosterone- Free
- ☐ DHEA-S
- ☐ 17-OHP

HOMA Score : Insulin Resistence

Common Condition when cells of the body do not respond properly to insulin hormone

- ☐ Glucose Fasting
- ☐ Insulin Fasting
- ☐ HOMA Score

Infertility Females:

To ascertain the cause of difficulty / inability to conceive in Women

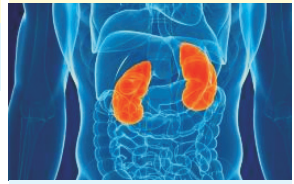
- ☐ Executive Profile
- ☐ Prolactin
- ☐ LH
- ☐ FSH
- ☐ AMH
- ☐ Progesterone
- ☐ Estradiol
- ☐ Testosterone- Total
- ☐ Testosterone- Free
- ☐ 5 alpha DHT
- ☐ Xpert MTB/RIF

Infertility Males:

To ascertain the cause in males who face the inability to cause pregnancy in a fertile female

- ☐ Executive Profile
- ☐ Prolactin
- ☐ LH
- ☐ FSH
- ☐ Testosterone - Total
- ☐ Testosterone - Free
- ☐ Estradiol
- ☐ Semen Routine
- ☐ Semen Fructose

Kidney Function Tests:



Basic evaluation of Kidney function Tests

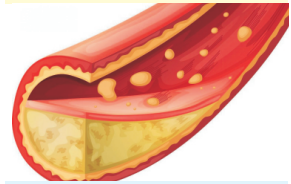
- ☐ Urea
- ☐ Creatinine
- ☐ Uric Acid
- ☐ Calcium
- ☐ Phosphorus
- ☐ Alk. Phosphatase
- ☐ Sodium|Potassium|Chloride
- ☐ Total Protein
- ☐ Albumin
- ☐ Albumin Globulin Ratio

Kidney Function Tests (Detailed):

Detailed evaluation of Kidney function Tests

- ☐ Kidney Function Tests
- ☐ eGFR (Calculated)
- ☐ Alb/ Creat Ratio, Urine
- ☐ PTH
- ☐ Vitamin D
- ☐ Creatinine Clearance

Lipid Profile – Basic:



To evaluate presence of various lipids in the blood

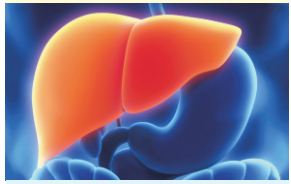
- ☐ S.Cholesterol
- ☐ S.Triglyceride
- ☐ S.HDL Cholesterol
- ☐ S.LDL Cholesterol
- ☑ S.Non HDL Cholesterol
- ☑ S.VLDL Cholesterol
- ☑ Total/HDL Cholesterol Ratio
- ☑ HDL/LDL Cholesterol Ratio

Lipid Profile – Extended:

To evaluate in detail the pattern of lipids in the blood

- ☐ Lipid Profile
- ☐ Apo A1 & Apo B
- ☐ Lp(a)

Liver Function Tests:



Tests that give information about functioning of liver

- ☐ Bilirubin Total & Direct
- ☐ SGOT
- ☐ SGPT
- ☐ GGT
- ☐ Alk Phosphatase
- ☐ Total Protein
- ☐ Albumin

Liver Function Tests (Detailed):

Tests that give detailed information about functioning of liver

- ☐ Liver Function Tests
- ☐ Hepatitis Screening Panel
- ☐ Prothrombin Time
- ☐ Amoebic Serology
- ☐ ANA

Available Disease Related Tests (contd.)

Pregnancy-Normal:

Normal pregnancy

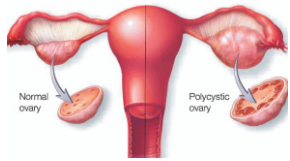
- ☐ Complete Blood Counts
- ☐ Glucose
- ☐ Blood Group
- ☐ Urine Routine
- ☐ TSH
- ☐ RPR
- ☐ HbsAg
- ☐ HIV
- ☐ HB Chromatography
- ☐ TORCH Profile- IgG & IgM
- ☐ Dual Marker
- ☐ Triple Marker

Pregnancy-Bad Obstetric History :

Evaluation of women who have had previous miscarriages

- ☐ Executive Profile
- ☐ Blood Group
- ☐ RPR
- ☐ HbsAg
- ☐ HIV
- ☐ Anti-TPO & TG
- ☐ HB Chromatography
- ☐ Progesterone
- ☐ Estradiol
- ☐ Lupus Anti Coagulant
- ☐ TORCH Profile - IgG & IgM
- ☐ Anticardiolipin - IgG & IgM
- ☐ Dual Marker
- ☐ Triple Marker
- ☐ Thyroid Profile
- ☐ ANA

PCOD / PCOS:



Hormonal imbalance in women of reproductive age

- ☐ Prolactin
- ☐ LH
- ☐ FSH
- ☐ AMH
- ☐ Insulin/ HOMA Score
- ☐ Testosterone Total & Free
- ☐ DHEA-S
- ☐ 17-OHP
- ☐ Androstenedione
- ☐ SHBG
- ☐ Lipid Profile

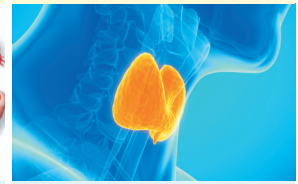
STD / VD Related:

Infections that may pass from one person to another through sexual contact.

- ☐ HBsAg | HCV | HIV
- ☐ RPR/ TPHA
- ☐ HSV- IgG & IgM
- ☐ Smear for Gonococci
- ☐ HIV-RT PCR (Viral Load)

Dad!!
Have you ever tested Yourself & Mom for Thalassemia Status to ensure I am OK ?

Thyroid Function Tests:



Evaluation of Thyroid functions

- ☐ Free T3
- ☐ Free T4
- ☐ TSH

Thyroid Function Tests (Detailed):

Detailed evaluation of Thyroid functions

- ☐ Free T3
- ☐ Free T4
- ☐ TSH
- ☐ Thyroid Antibodies
- ☐ -Anti TG
- ☐ -Anti TPO

Tuberculosis Related:

Tests for evaluation and confirmation of Tuberculosis- an infectious bacterial disease- especially in the lungs

- ☐ Complete Blood counts
- ☐ ESR
- ☐ AFB Staining
- ☐ Mantoux Test
- ☐ ADA
- ☐ FNAC
- ☐ Rapid TB Culture
- ☐ Xpert MTB/RIF

Thalassemia Related:

An inherited blood disorder characterized by abnormal hemoglobin production.

- ☐ CBC (inc. Hb, MCV, RDW-SD)
- ☐ Hb Chromatography
- ☐ Iron Studies
- ☐ Ferritin

Life Style Suggestions

Suggestions especially for Diabetes & High Blood Pressure related issues

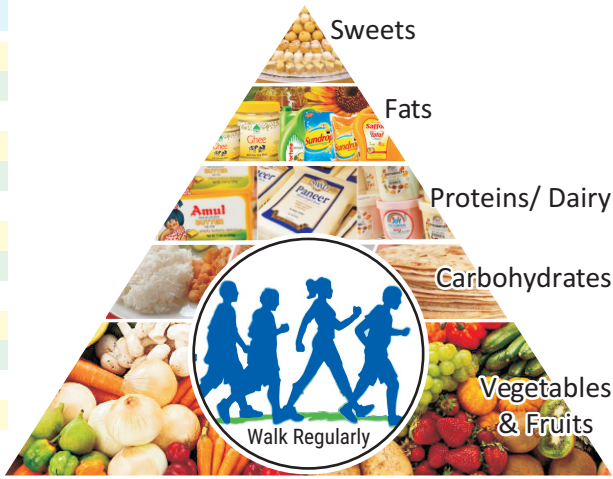
The prevalence of **obesity** is rising to epidemic proportions at an alarming rate in developed and developing countries worldwide. Non-communicable diseases such as **diabetes** now account for a large number of deaths each year worldwide. The **twin epidemics of obesity and diabetes** already represent the biggest public health challenge of the 21st century. Being overweight or obese seriously increases an individual's risk of developing other health problems such as **diabetes, coronary heart disease, strokes and some forms of cancer**. Of these, Diabetes is the most preventable consequence of obesity.

Suggested Weight - Kgs

Height	Weight
5'	54
5' 1"	56
5' 2"	57
5' 3"	59
5' 4"	61
5' 5"	63
5' 6"	65
5' 7"	67
5' 8"	69
5' 9"	71
5' 10"	73
5' 11"	75
6'	77

Acceptable ± 10%

Healthy Diet & Life Style

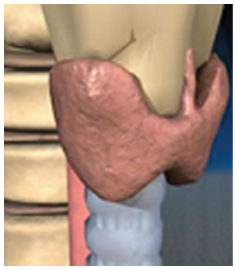


Although obesity can affect anyone, the main risk factors are high-fat, high-energy dense diets & physical inactivity. We should promote the importance of eating a low-fat, low-energy-dense diet & participating in physical activity to reduce the risks of becoming overweight or obese. It is estimated that at least half of all adult-onset diabetes patients would become normal if they control their weight.

Benefits of Weight Loss

Disease	Benefits
Diabetes	Weight loss of more than 5 kg decreases the risk of developing diabetes by 50%. Weight loss of 5-10% improves glucose control, sometimes allowing reduction or even medication withdrawal. Weight loss leads to a reduction in diabetes-related mortality.
High BP and Lipid Profile	Every 1 kg fall in weight leads to a falling in BP of 1-2 mm Hg. Weight loss leads to a fall in LDL cholesterol and Triglycerides (Bad lipids) and an increase in HDL Cholesterol (Good lipids).

Thyroid Disorders



Thyroid diseases are more common than diabetes or heart disease. The incidence of hypothyroidism in women is higher than in men, and it hits hardest during pregnancy, mid-life, and older age. Symptoms of Hypothyroidism are usually vague and go unnoticed for years together. Thyroid diseases can affect every system and cell in the body, leaving it vulnerable to heart disease, osteoporosis, and other illnesses. The American Thyroid Association recommends that everyone over 35 years, especially women, be screened for thyroid disorders.

Available Thyroid Function Tests

Thyroid screening:	**Serum TSH, Free T4 & Free T3**
Detailed Thyroid profile:	**Serum TSH, Free T4, Free T3 Thyroid Abs: Anti TPO & Anti TG**

Symptoms

Hypothyroidism

Weight Gain	**Lethargy**
Dry Skin	**Puffy Face**
Infertility	**Joint Pains**
Depression	Cold Intolerance
Slow Heartbeat	Forgetfulness
Coarse &	Brittle Nails
Dry Hair	Heavy Periods
Muscle Aches	Constipation

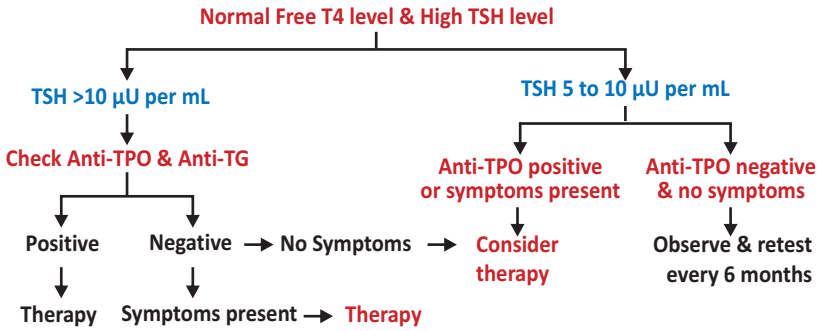
Hyperthyroidism

Weight Loss	**Rapid Pulse**
Sweating	**Nervousness**
Moist Palms	**Tremors in Hands**
Hair Loss	Irritability
Bulging Eyes	Infertility
Weakness	Enlarged Thyroid
Scanty	Frequent Bowel
Periods	Movements

Subclinical Hypothyroidism

A significant number of patients who are screened for thyroid disease have marginally increased serum TSH (thyroid-stimulating hormone) levels, but their Free Thyroxine (T4) levels are within normal limits. This condition is, termed "subclinical hypothyroidism", which is an early stage of Hypothyroidism and is common in women and older persons. This condition's symptoms, which is usually fatigue and constipation, are usually ignored, thinking that they are because of ageing. Thyroid Antibodies (Anti TPO & TG) test should be performed on all such cases.

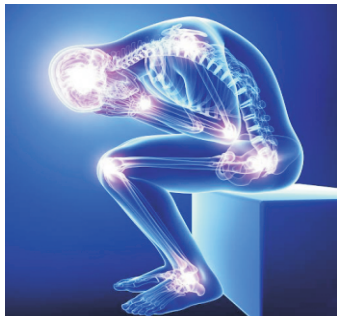
Algorithm for the Management of Subclinical Hypothyroidism



Basic Information on Common Health Challenges

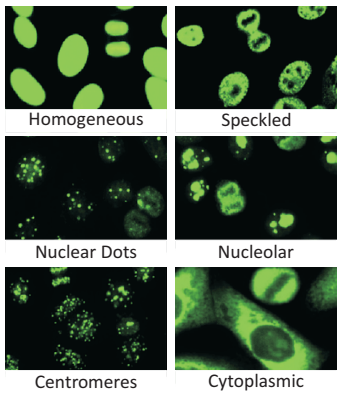
Joint Pain & Connective Tissue Disorders

- A Cost Effective Confirmation of CTD and Autoimmune Disorders



Arthritis (Joint Pains) presents as swelling, pain, stiffness and decreased range of motion in joints. Symptoms may be mild to severe and may stay for years. Severe arthritis can result in chronic pain, inability to do even daily activities. There are more than 100 types of arthritis and related conditions. It is most common among women and old age. Arthritis can cause permanent joint changes such as knobby finger joints. Some types of arthritis also affect the heart, eyes, lungs, kidneys and skin as well.

Common ANA-IIF Patterns



Homogeneous | Speckled | Nuclear Dots | Nucleolar | Centromeres | Cytoplasmic

Available Joint Pain Related Tests

- **Screening Tests:** CBC | ESR | Bl. Glucose | Uric Acid | Rheumatoid Factor | Anti CCP
- **Further Tests:** Calcium | Phosph | Alk. Phosphatase | CRP | ASO | PTH | Vit D
- **Other Special Tests:** **ANA-Elisa or ANA-IIF | ANA/ENA Profile | HLA B27**

ANA-IIF & ANA/ENA Profile in brief

Serum ANA by IIF Technique: Gold Standard or diagnosis of Autoimmune disorders.

Serum ANA-ENA Panel: A panel for detection (Negative,+,++,+++) of autoantibodies of IgG class to 17 different antigens.

Autoimmune Disease & Relevant Antigens

Systemic lupus erythematosus (SLE)	dsDNA, Histones, Ku, PCNA, Ro-52, Nucleosomes, Ribosomal Protein, Sm, SS-A native, SS-B
Lupus erythematosus neonatal	SS-A native, SS-B
SLE- Drug Induced	Histones
Sjogren's syndrome	SS-A native (60 kDa), SS-B, Ro- 52 recombinant
Systemic Sclerosis (SSc)	AMA-M2, Ku, Ro-52 recombinant, Scl-70
SSc - Diffuse & Limited forms	Scl-70, Centromere B
Dermatomyositis Adult / Juvenile	Mi-2
Idiopathic inflammatory myopathy	Ro-52 recombinant
Myositis (Polymyositis, Dermatomyositis, Idiopathic)	Ku, Jo-1, Mi-2
Polymyositis/ SSc overlap syndrome	PM-Scl100
Mixed connective tissue disease	RNP/Sm
Primary biliary cirrhosis & Other chronic liver diseases	AMA-M2, Centromere B
RA	Histones

Risk of Common Autoimmune Diseases

Women	Risk	Men
1 in 12	Over all risk	1 in 20
1 in 28	Rheumatoid Arthritis	1 in 59
1 in 42	Polymyalgia Rheumatica	1 in 59
1 in 100	Giant cell Arteritis	1 in 200
1 in 111	Lupus	1 in 500
1 in 125	Sjogrens syndrome	1 in 2500
1 in 200	Psoriatic Arthritis	1 in 167
1 in 1000	Ankylosing Spondylitis	1 in 167

ANA / ENA Profile - Specimen Report

Antigen	Intensity	Class	0	(+)	+	++	+++
Mi-2	0	0					
Ku	2	0					
RNP/Sm	1	0					
Sm	0	0					
SS-A native	1	0					
Ro-52 recombinant	1	0					
SS-B	2	0					
Scl-70	2	0					
PM-Scl100	1	0					
Jo-1	0	0					
Centromere B	1	0					
PCNA	0	0					
dsDNA	0	0					
Nucleosomes	93	+++					
Histones	21	+					
Ribosomal Protein	4	0					
AMA-M2	1	0					
Control	94	+++					
Label	-1						

INTERPRETATION OF RESULTS BASED ON SIGNAL INTENSITY

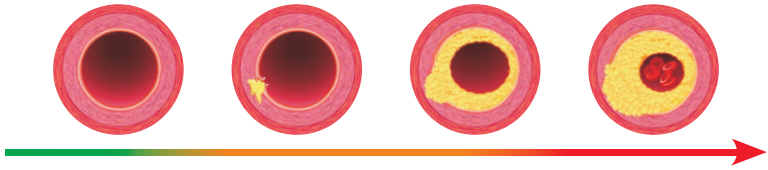
Signal visual evaluation	Signal Intensity	Results	
No signal	0-5	0	Negative
Very weak band	6-10	(+)	Borderline **
Medium to strong band	11-25 or 26-50	+ , ++	Positive
Very strong band	> 50	+++	Strong Positive

** Results in the borderline range from 6 to 10 should be evaluated as increased but NEGATIVE

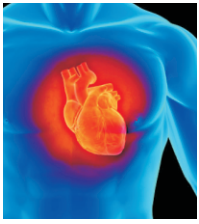
Heart Attack

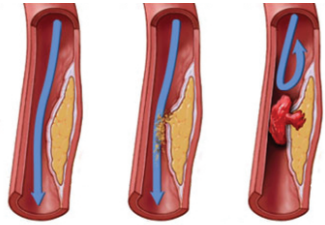
Heart Attack or Coronary artery disease is the leading cause of death in India and developed countries. The deposition of Fat, Cholesterol and other substances in arteries is known as Arteriosclerosis. If such accumulations are large, they are called plaque, and they can damage artery walls and block blood flow. Such a block may severely restrict blood flow in the heart muscle and may lead to symptoms such as chest pain and, ultimately, Heart Attack, which can be fatal. The above-mentioned disease process, which may lead to death, is probably due to unhealthy cholesterol & lipid levels. LDL- Cholesterol acts as a villain & HDL Cholesterol acts as a hero in the process.

Progression of Arteriosclerosis



Heart Attack : Simplified



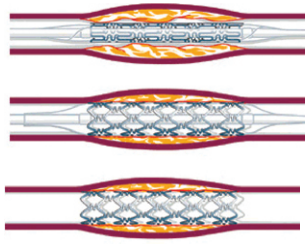


Plaque with fibrous cap

Cap ruptures

Blood Clot Blocks artery

Balloon Angioplasty



This process of Arteriosclerosis is enhanced by other risk factors, including high blood pressure, smoking, obesity, diabetes, and a sedentary lifestyle. When more than one of these risk factors is present, the risk is compounded. The effects of cholesterol on the heart may involve more than just the arteries. There is some evidence that unhealthy levels may affect the heart muscles and increase heart failure risk.

High Blood Pressure Management

Modification	Recommendation	BP Reduction
Weight reduction	Try to maintain body weight as per table.	5-20 mm Hg/ 10-kg weight loss
Diet modification	Consume a diet with low fat & high fibre contents (fruits, vegetables etc)	8-14 mm Hg
Salt Reduction	Reduce salt intake	2-8 mm Hg
Physical activity	Regular physical activity such as brisk walking (at least 30 minutes per day, most days of the week)	4-9 mm Hg
Alcohol Intake	Avoid alcohol or reduce consumption drastically	2-4 mm Hg

Heart Failure and Heart Attack

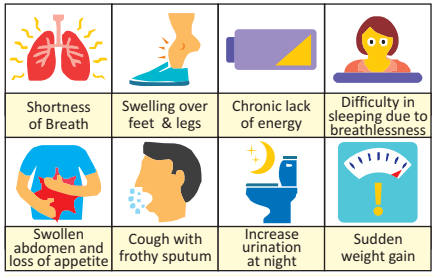
NT Pro BNP and HS Trop I : Laboratory tests for Early Diagnosis

Heart failure and heart attack are both forms of heart disease. Most heart attacks happen suddenly when one of the arteries leading to the heart becomes blocked and cuts off the blood flow. Without oxygen, the heart muscles start to die. Heart failure, on the other hand, usually develops gradually.

NT ProBNP for Heart Failure

With 23 million cases worldwide, Heart failure (HF) has been singled out as a major emerging epidemic. Since early symptoms are usually vague and diagnosing heart failure (HF) in OPD is difficult, it is dangerous to ignore the symptoms.

Presentation of Heart Failure



- **NT-proBNP is a useful and accurate blood test for ruling out the diagnosis of heart failure.** It excludes or confirms ACUTE HEART FAILURE.
- This cost-effective and specific test helps in EARLY initiation of appropriate treatment in emergency situations. This improves patient outcome. Using NT-proBNP helps clinicians to optimize the management of patients. This may result in a significant decrease in-hospital stay and reduced re-hospitalization.

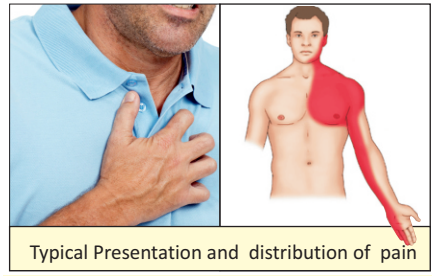
Interpretation

International guidelines recommend a single low cut-off of 125 pg/mL to rule out HF for patients presenting with non-acute symptoms. However, a study published in the Indian Journal of Endocrinology and Metabolism recommends an arbitrary value of 300 pg/mL for the management of Heart failure.

HS Trop I for Heart Attack

Every year, 16 million people worldwide die of cardiovascular diseases, specifically heart attacks or stroke. Chest pain is among the top 10 reasons to visit Physicians or Emergencies. The expected prevalence of acute myocardial infarction (MI) is 10 to 20%.

Presentation of Heart Attack



Typical Presentation and distribution of pain

- **Trop I (HS cTrop I) levels start rising within 2 to 3 hours of the onset of chest pain & remains elevated for almost ten days.**
- **HS cTrop I (high sensitive Cardiac Troponin I or HS cTrop I)** is a useful blood test for confirming and optimising the management of Acute Coronary Syndromes. This helps in improving patients outcome.
- In addition to clinical assessment and an electrocardiogram (ECG), Trop I (HS Trop I) is now a mandatory investigation to make a definitive diagnosis of acute MI.
- Serial measurement of Trop I (HS cTrop I) differentiates acute from chronic cardiac myocyte damage.

Interpretation:

Less than 19 ng/L : NEGATIVE

More than 100 ng/L : POSITIVE

Individuals with values between 19 and 100 ng/L should be retested after 3 hours.

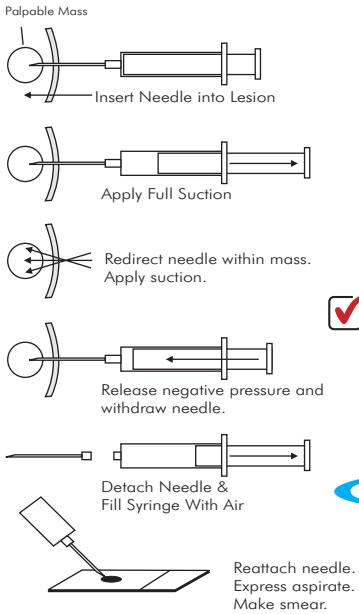
FNAC For Superficial Palpable Lumps

An inexpensive rapid test for diagnosis of superficial palpable masses

Fine Needle Aspiration Cytology (FNAC) is a simple, quick and inexpensive method used to sample superficial suspicious masses such as palpable lymph nodes, thyroid nodules, breast, or any other lump in the body. It can rule out cancer which in many cases is a major worry which alleviates patent anxiety.

Results: The aspirate is examined under a microscope, and a diagnosis is made based on the type of cells that are seen. In some cases, the opinion may be inconclusive and actual diagnosis may require further testing, usually involving a surgical biopsy.

FNAC Technique



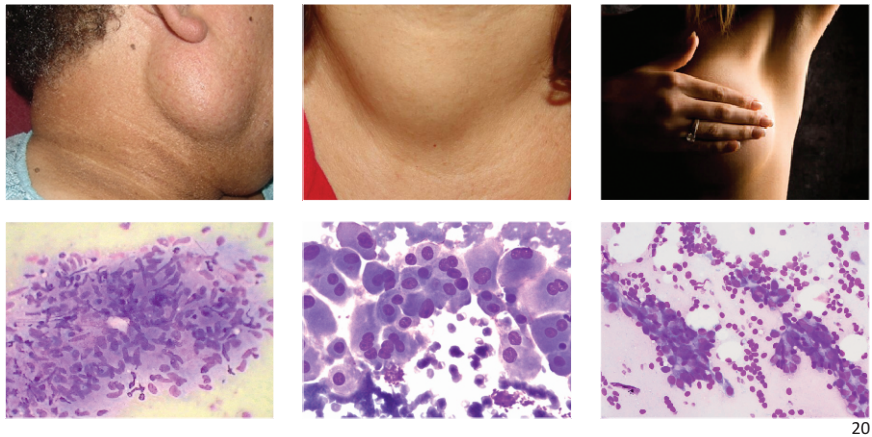
Benefits and Limitations:

FNAC is a rapid, effective test for determining the status of the suspect tissue. Compared to surgical biopsy, FNAC is an OPD procedure that causes minimal trauma, infection or scarring with minimal recovery time. Once the test is completed, the patient can continue normal activities. Smear prepared from the aspirate obtained through the procedure is stained, examined under a microscope, and an opinion is given.

FNA for Confirmation of MTB-Tuberculosis:

In cases with Granulomatous lymphadenitis or purulent aspirates, Xpert MTB (CBNAAT) testing has an important role in confirming Extra Pulmonary Tuberculosis (EPTB).

Combining FNA with Xpert MTB (CBNAAT) has the advantage of detecting FNA missed cases, and significant numbers of cytomorphological TB NEGATIVE aspirates can be confirmed or diagnosed by Xpert MTB (CBNAAT).



Cancer Markers

Cancer markers are not diagnostic in themselves. A definitive diagnosis of cancer can be made by looking at biopsy specimens (e.g., of tissue) under a microscope or Fine Needle Aspiration Cytology (FNAC) and smear examination of discharge (Pap smear). However, cancer markers provide information that can be used in monitoring treatment, helping in diagnosis, staging & determining prognosis & recurrences.

Cancer Warning Signals*

- Change in bowel habits (Colon) or bladder function (Bladder, Prostate)
- Sores that do not heal (Oral Cancer)
- White patches inside the mouth or white spots on the tongue (Precancerous Leukoplakia)
- Unusual bleeding or discharge (Lung, Kidney, Colon, Rectal, Cervical or the endometrial)
- Thickening or lump in the breast or other parts of the body
- Recent change in a wart or mole or any new skin change (Skin-Melanoma)
- Nagging cough or hoarseness (Lung, Larynx or Thyroid Gland)

Cancer Markers Available

Cancer Markers	Cancers Detected**	Indicated In
AFP	Liver, germ cell cancer of ovaries or testes	Men & Women
CA 19.9	Pancreatic, sometimes bowel and bile duct	Men & Women
hCG	Testicular & trophoblastic	Men & Women
PSA/Free PSA	Prostate	Men
CA 15.3	Breast & others including lung, ovarian	Women
CA 125	Ovarian	Women
CEA	Bowel, lung, breast, thyroid, liver, cervix & bladder etc.	Men & Women

**Cancer Markers may be elevated in a few benign diseases other than cancers also.

Celiac Disease - Gluten-sensitive Enteropathy

Celiac disease (gluten-sensitive enteropathy), sometimes called sprue or celiac, is an immune reaction to eating gluten, a protein found in wheat, barley and rye. If you have celiac disease, eating gluten triggers an immune response. Over a period of time, this reaction damages the small intestine's lining and prevents absorption of some nutrients, which in children may affect growth and development. There's no cure for celiac disease — but for most people, following a strict gluten-free diet can help manage symptoms and promote intestinal healing.

Signs & Symptoms

1. Diarrhea
2. Bloating & Gas
3. Fatigue
4. Weight Loss
5. Constipation
6. Depression
7. Itchy Rash
8. Iron-Def. Anemia

Laboratory Tests

Screening:

1. tTG IgA Abs, Serum
2. IgA, Serum
3. DGP IgG Abs, Serum
4. Endomysial Abs, Serum

Further Confirmation:

1. Biopsy
2. Genetic Tests: HLA DQ2 & DQ8

Tests for General Assessment

1. Complete blood count (CBC) with ESR
2. C-Reactive protein (CRP)
3. Comprehensive metabolic panel (CMP)
4. Vitamin D, Vitamin B12 and Folate
5. Iron, TIBC, Transferrin & Ferritin

Intolerance & Allergy

- Available In Vitro Blood Tests for detection of Intolerance & Allergy

Intolerance vs Allergy

Allergy: A true food or inhalation allergy causes an immune system reaction that affects numerous organs in the body. It can cause a range of symptoms. In some cases, an allergic food reaction can be severe or life-threatening.

Intolerance: In contrast, food intolerance symptoms are generally less serious and often limited to digestive problems.

Test for Food Intolerance:

A blood test that can detect Food Specific IgG antibodies against many food items may lead to various conditions such as digestive problems, irritable bowel syndrome, eczema and arthritis.

Symptoms of Food Intolerance

Symptoms of Food Intolerance include digestive issues such as bloating of the abdomen after eating certain types of foods, tiredness or headache for no apparent reason.

Bloating of Abdomen | Flatulence | Stomach Cramps & Pain | Constipation | Headache | Lethargy | Diarrhoea | Eczema | Arthritis | Back Pain

List of Food Items tested for Intolerance

Cereals	Nuts & Beans	Vegetables	Fruits	Fish & Meat
				
Corn Wheat Gluten Oats Rice Rye Semolina Barley	Almond Cashew Cocoa-Powder Peanut Soya-Bean Walnut Flaxseed	Broccoli Cabbage Carrot Cucumber Potato Tomato Onion Brinjal Garlic Ginger	Apple Black Raisin Olive Strawberry Banana Black Currant	Chicken Lamb Pork Fish-Surmai Mackerel Prawn Crab Shrimp
Milk & Poultry	**Pulses**			
				
Egg Milk Tea	Moong Dal Tur Dal Chana Dal Lentil			

Interpretation and Suggestions:

Result	Suggestion
Strong Positive	Do not take that food item for 3 months.
Moderate Positive	Reduce these foods to once every 4 days.
Weak Positive	Observe the effect of eating these foods.
Negative	Acceptable

Allergy: Food & Air

- In Vitro Specific IgE Estimation for detection of Food and Air Allergens

Allergy causes an immune system reaction that affects numerous organs in the body. An allergic reaction can be caused by **Inhalation** (through Air) or **Food** Allergens. Symptoms of allergic reactions usually occur quickly and, in some cases, can be severe or life-threatening.

Food Allergy

Symptoms: Burning & Itching in Lips, Tongue & Throat | Diarrhoea | Vomiting | Pain in Abdomen | Erythema or Urticaria.

Food Allergens Tested

1. Egg white
2. Egg yolk
3. Cow's milk
4. Milk powder
5. Yogurt
6. Wheat flour
7. Gluten
8. Oat flour
9. Rice
10. Soybean
11. Peanut
12. Orange
13. Coconut
14. Apple
15. Grape
16. Pea
17. Tomato
18. Potato
19. Spinach
20. Garlic
21. Onion
22. Chickpea
23. Mushroom
24. Cucumber
25. Eggplant
26. Arhar Dal
27. Mung
28. Yam
29. Beef
30. Chicken
31. Lamb
32. Mustard
33. Coffee
34. Chocolate
35. Ginger
36. Spice mix
37. Codfish
38. Crab
39. Prawn
40. Rohu

Air-Inhalation Allergy

Symptoms: Red watery Eyes | Sneezing | Congestion | Runny Nose | Sore Throat | Cough | Buzzing Sounds

Inhalation Allergens Tested

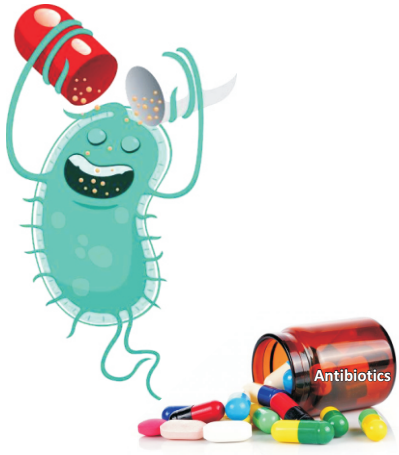
1. Timothy grass
2. Cultivated rye
3. Corn
4. Eucalyptus
5. False ragweed
6. Carnation flower
7. Sunflower
8. Mite mix 1
9. Der. farinae
10. Cockroach
11. Cat
12. Dog
13. Pigeon feathers
14. Chicken feathers
15. Aspergillus spp
16. Trichophyton spp
17. Cotton
18. Straw dust
19. Jute
20. Sheep wool

Allergy Prevention Suggestions

Basic Information on Common Health Challenges

Antibiotic Resistance

SUPERBUG - A Global Threat : Bacteria resistant to most of the antibiotics



Antibiotic resistance is one of the biggest threats to global health, food security, and development today. Antibiotic resistance can affect anyone, of any age, in any country.

A growing number of infections such as PNEUMONIA, TUBERCULOSIS, GONORRHEA and SALMONELLOSIS (Typhoid) are becoming harder to treat as the antibiotics used to treat them become less effective. Antibiotic resistance leads to longer hospital stays, higher medical costs, and increased mortality.

Both the stakeholders - Patients & Doctors can solve this problem by taking the following measures; otherwise, we will positively end up in the pre-antibiotic era.

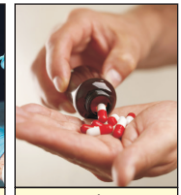
Antibiotics: Dos and Don'ts !!

WASH HANDS Maintain Hygiene

Antibiotics **DO NOT WORK** on Cold & Flu

Start Antibiotics on **DOCTORS ADVICE** only

If possible start Antibiotics after **CULTURE TESTING**



Take **FULL COURSE** of Antibiotics!!

Expectations from PATIENTS

- ONLY A FEW infections require antibiotics.
- START antibiotics ONLY when prescribed by your PHYSICIAN. NEVER start a course on your own.
- TRUST YOUR PHYSICIAN !!! They will prescribe only when you need them.
- STRICTLY adhere to your PHYSICIAN's prescription and complete the course of antibiotics.
- NEVER SHARE or use leftover antibiotics.
- PREVENT infections by regularly washing hands, preparing food hygienically, avoiding close contact with sick people, practising safer sex, and keeping vaccinations up to date.

Expectations from treating DOCTOR

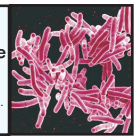
- EDUCATE patients about the importance of building immunity and maintaining hygiene in preventing infections (vaccination, hand washing, healthy diet, physical activity, safe sex etc.)
- PRESCRIBE antibiotics only according to current guidelines. AVOID empiric course of antibiotics treatment.
- CULTURE & SENSITIVITY testing should be ordered wherever appropriate (to avoid empiric therapy) before starting an antibiotic course.
- EXPLAIN to the patient in detail on how to take antibiotics, including the importance of completing the course and dangers of potential misuse of antibiotics.

Molecular Diagnostics

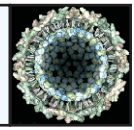
-Cartridge Based Nucleic Acid Amplification Test:
A Rapid cost effective RT-PCR for common infectious diseases & HLA B27

Available CB-NAAT - RT PCR tests

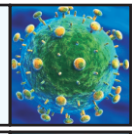
M.tuberculosis
with Rifampicin Resistance
Specimen: Site Specific
Pulmonary: Sputum & Bronchial Aspirate etc.
Extra-pulmonary: Pus, Fluids, FNA, Biopsy etc.
Reporting: Same day



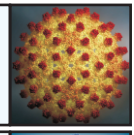
Chikungunya
Viral Load
Specimen: Plasma
Reporting: Same day



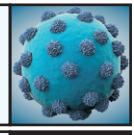
HIV
Viral Load
Specimen: Plasma
Reporting: Same day



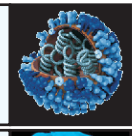
Hepatitis B
Viral Load
Specimen: Plasma
Reporting: Same day



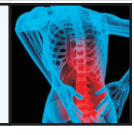
Hepatitis C
Viral Load
Specimen: Plasma
Reporting: Same day



H1N1
Qualitative
Specimen: Nasal Swab
Reporting: Same day



HLA B27
Qualitative test for Ankylosing Spondylitis
Specimen: Blood
Reporting: Same day



☑ Molecular diagnostics (RT-PCR) is now available for more than a decade. It has given us the confidence of delivering sensitive, specific test results, especially for infectious diseases that affect masses. This technology has provided a quantum leap in patient care delivery by expediting diagnosis and improving treatment efficacy.

☑ Unfortunately, until recently, molecular diagnostics have not met the Medical profession's expectations as laboratories ignored the most important clinical correlation issues, contamination, reagents stability, and even standardization. Further molecular diagnostics remained the domain of chain labs that could manage to keep the prices low by batch testing but at the cost of increased TAT.

☑ Recently introduced **CB-NAAT (Cartridge Based Nucleic Acid Amplification Test)** Testing is considered GAME CHANGER in the field. The sophisticated design of hardware and highly sensitive, specific, efficient, linear range, clinical validation, reproducibility, and precision results from CB-NAAT systems comparable to the best of the reference RT PCR equipment. These systems ensure that all processes and protocols of RT-PCR testing - starting from sample preparation to the final reporting of the result are completed in few hours.

☑ Realizing the importance of molecular diagnostics, North Delhi Pathology Clinic has opted for CB-NAAT Systems. These RT-PCR equipment have adequately addressed prevailing limitations. They have proven to be reliable, sensitive, cost-effective and fast, with a low turn around time.

Comprehensive Complete Blood Counts-CBC

Parameters available in Sysmex XN Series using Fluorescent Flowcytometry

We at NDPC use Sysmex XN Series haematology Analyser that uses state of the art Fluorescent Flow Cytometry Technology to provide many Platelet, WBC and RBC parameters (related to all stages of transformation from immature to mature). This helps physicians to make critical clinical decisions and monitoring therapy.

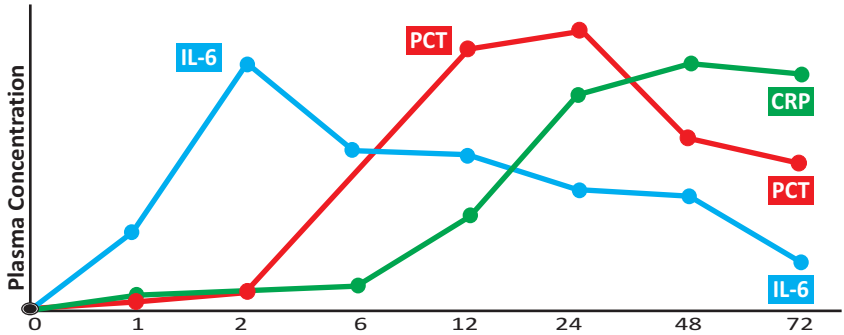
Sysmex XN series is not only capable of providing precise and accurate results of all routine parameters, but it is also capable of generating advanced new parameters such as Immature Platelet Fraction (IPF), Fluorescent Platelet Count (PLT-F), Immature Granulocytes (IG), Nucleated RBCs (NRBC), Reticulocyte count including RET-He.

Cells	Parameters	Information Given	Useful in
Platelets	**Platelet Count-F (Fluorescent)**	Platelet count by fluorescent flowcytometry	**Dengue, ITP, Autoimmune thrombocytopenic Purpura etc.**
	Immature Platelet Fraction (IPF)	% of immature platelets (indicates **bone marrow platelet production**)	Differentiating **Consumptive** processes (**Dengue, ITP**) & Bone Marrow **Suppression** (Aplasia, MDS)
WBCs	**Immature Granulocyte %** (IG%)	IG% indicates severity of the **early immune response** (patients with suppressed immune system).	**Rapid discrimination** of bacterial from viral infections, particularly in children. **Early recognition** of bacterial infection and sepsis in adults ICU patients
Red Blood Cell	**Nucleated RBCs** (NRBC/100 WBC)	Reflection of extreme increases in erythropoietic activity	Assessment of **Acute hemolytic episodes, Thalassemia** syndromes, Hematological malignancies, Bone marrow metastases of solid tumors. **Extramedullary hematopoiesis, Hematopoietic stress** (sepsis, massive hemorrhages)
	Reticulocyte Hemoglobin (RET-He)	Direct measurement of red cell hemoglobin content for rapid evaluation of changing iron status	Precise monitoring of **treatment of Iron deficiency anemia.** Evaluation of iron status in persons suffering from **Kidney disease** (on dialysis) and **other chronic diseases** (chronic infection or malignancy)
	Reticulocyte Count	Current iron availability for erythropoiesis.	**Evaluate type of anemia** and response to iron therapy.

Automated Semen Analysis

QwikCheck Gold Automatic Sperm Quality Analyzer is a state-of-the-art sperm quality analyzer capable of performing a complete quantitative evaluation of semen elements, including all basic and advanced analysis of parameters including Motility, Morphology and Vitality.This high-performance system incorporates electro-optics and computer algorithms to provide a precise and accurate automatic semen analysis.

Inflammation / Sepsis Related Biomarkers



Kinetic profiles of different biomarkers of bacterial infection.

C-Reactive Protein (CRP)

C-Reactive Protein is a sensitive marker of inflammatory processes. An increase of CRP occurs in various infectious states, rheumatoid arthritis, myocardium infarct, malignant tumour, etc. More recently, the application of ultrasensitive or hs CRP assays to studies of adult cardiovascular disease has revealed important prognostic relationships between the modest increase of CRP and the occurrence, progression, and thrombo-occlusive complications atherosclerosis.

Importance: For Diagnosis and Monitoring of treatment of inflammatory disorders.

Procalcitonin (PCT)

Procalcitonin (PCT) is an early & specific test that becomes positive within 3-6 hours of infection & results of which are available in less than an hour. It is a useful test in differentiating between bacterial from viral infections and is of great help in starting & monitoring antibiotic therapy. Its level rises with increasing severity of the infection & returns to normal very early as the infection resolves. Due to better specificity, PCT has an advantage over established common markers for inflammation, i.e. CRP, ESR & TLC.

Importance: A specific marker for bacterial infection and sepsis.

Interleukin-6 (IL-6)

In vitro quantitative IL-6 estimation is used to manage critically ill patients as an early indicator for acute inflammation. Its production is rapidly induced in acute inflammatory reactions associated with injury, trauma, stress, infection, neoplasia, etc. It helps predict later complications or indicate missed injuries. Sequential measurement of IL-6 in patients admitted to ICU is useful in evaluating the severity of sepsis, septic shock, neonatal sepsis & to predict the outcome of these patients.

Importance: Another test for Diagnosis and Monitoring of treatment of inflammatory disorders.

D Dimer

Quantitative determination of fibrin degradation products (FDP) is performed to rule out deep vein thrombosis (DVT), Pulmonary embolism disease, & evaluation of acute MI, unstable angina & disseminated intravascular coagulation (DIC). Elevated D-dimer levels are also observed in conditions where activation of coagulation & fibrinolysis occurs (surgery, trauma, infection, inflammation, pregnancy & cancer). Elevated Plasma D Dimer level is also observed in nearly 40% of pregnant women with pre-eclampsia.

Importance: A specific marker for DVT, Pulmonary embolism disease, & evaluation of acute MI.

Miscellaneous Concerns

Vitamin D Deficiency

Importance of VITAMIN D

Deficiency of Vitamin D is known to cause muscle weakness, Pains, Rickets, Osteoporosis and Osteomalacia. However, recent studies have established that its deficiency may also be associated with diseases of the Brain (Schizophrenia, Depression), Immune System (Type II diabetes, Multiple sclerosis, Rheumatoid arthritis, weakened response to fight tuberculosis, influenza and other diseases), Lungs (Asthma), Circulatory system (High blood pressure, Coronary heart disease, Paralytic Strokes) and Cancer (possibly associated with a variety of cancers, including colon, prostate and ovarian).

Probable Cause: **Less exposure to SUNLIGHT due to life style changes & pollution**

Vitamin B^{12} Deficiency

Importance of VITAMIN B12

Data from recent studies suggest that a large number of adults have low Vitamin B12 levels. Symptoms of deficiency are Tingling in the Fingers and Toes, Pain in the legs, Chronic Fatigue, Forgetfulness, Confusion, Psychosis, Hallucinations, Tremors, Depression, Urinary Incontinence, Weight Loss and Shortness of Breath. These symptoms can also be confused with the normal ageing process and symptoms of other neurological diseases. Vitamin B-12 is mostly available only in animal foods: meat, fish, poultry, eggs, and dairy products. It is missed as most of us are not tested for it.

Probable Cause: **Deficiency of Vitamin B12 in Indian diet which is primarily vegetarian.**

Fecal Calprotectin

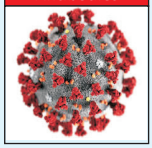
Irritable Bowel Syndrome

Fecal Calprotectin is a Stool Test for **Diagnosis & Monitoring of Inflammatory Bowel Disease.** Calprotectin is a calcium-binding protein found within neutrophils that influx into the bowel during inflammation. Calprotectin levels may be elevated in patients suffering from **INFLAMMATORY bowel diseases (IBD)** but not in non-inflammatory bowel diseases, e.g. **IRRITABLE bowel syndrome (IBS).** This test is thus useful to differentiate between IBD & IBS & monitor IBD therapy & detect relapse.

Important: **For differentiating between IBD & IBS and to monitor IBD therapy.**

COVID Antibody Quantitative Test (Anti SARS-COV-2 S-Protein)

COVID Antibodies



This immunoassay is for the quantitative determination of antibodies (including IgG) to the SARS-CoV-2 spike (S) protein. Upon infection, exposure or vaccination, the host mounts an immune response against the virus, including the production of specific IgG and IgM antibodies against SARS-COV-2. These antibodies appear nearly simultaneously with strong neutralizing capacity directed against the RBD. **POSITIVE** Result indicates exposure, infection or vaccination leading to the body developing immune response. **NEGATIVE** Result DOES NOT entirely rule out the possibility of an infection with SARS-COV-2.

Importance: **Becomes Positive 4-6 weeks after COVID 19 infection, vaccination or exposure.**

Important :

All laboratory reports should be interpreted by PHYSICIAN/ TREATING PHYSICIAN, only who can integrate the pertinent information, such as age, circadian variation, ethnicity, health history, signs and symptoms and reports of other procedures (laboratory, imaging, endoscopy etc.) to determine health status. Significant Inter-Laboratory variation is observed because of differences in methodology & mode of standardisation. Such variation is more substantial and frequent in immunological tests, which use antibodies that may have different characteristics. We strongly DISCOURAGE SELF INTERPRETATION of LABORATORY report & self-medication.