UNIT 4 ROLE OF PHYSICAL INVESTIGATION AND ASSESSMENT IN MENTAL DISORDER

Structure

4.1 Introduction

4.2 Learning Objectives

4.3 Why Physical Investigations?

4.4 Which Physical Investigations?
   4.4.1 Routine Tests
       4.4.1.1 Routine Tests as Health Screen
       4.4.1.2 Routine Tests for Monitoring Adverse Effects
       4.4.1.3 Electrocardiogram (ECG)
       4.4.1.4 Pregnancy Test
   4.4.2 Special Tests
       4.4.2.1 Routine Blood Tests
       4.4.2.2 Thyroid Function Tests (TFT)
       4.4.2.3 Nutritional Deficiency-Vitamin Levels
       4.4.2.4 Blood Tests for Sexually Transmitted Disease
       4.4.2.5 Electroencephalogram (EEG)
       4.4.2.6 Imaging Tests for Persons with Mental Illness
           4.4.2.6.1 Chest-X-Ray
           4.4.2.6.2 Ultrasound Abdomen
           4.4.2.6.3 Computerised Tomography (CT) of Head
           4.4.2.6.4 Magnetic Resonance Imaging (MRI) Brain
           4.4.2.6.5 Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET)
           4.4.2.6.6 To Screen Substance Abuse: Breath Analyzer and Urine Screen
           4.4.2.6.7 To Monitor Drug Levels in Blood

4.5 Let Us Sum Up

4.6 Glossary

4.7 Answers to Check Your Progress Exercises

4.8 Unit End Questions

4.9 References and Further Readings

4.1 INTRODUCTION

In previous Units, we have already learned that psychiatric illnesses are particular set up of symptoms or signs that occur together. These mental illnesses can result either from abnormality of thinking which usually manifest in the form of irrelevant or abnormal speech, or abnormality of behaviour or emotions. In most cases, it is a combination of all the above to varying degree. We also learned about importance of history taking and mental status examination while interviewing aid in collecting clinical evidence that help in reaching a diagnosis. We learned that it is very important to know the person’s nature before the onset of abnormal behaviour, also known as premorbid personality or
premorbid temperament. In absence of laboratory test that will confirm or refute a psychiatric diagnosis, we usually go for psychological assessment, as discussed in the previous Unit. This is particularly important in cases where there is doubt about presence of mental illness or about type of mental illness. Latter is important for psychiatrist as this will guide what treatment to be followed.

### 4.2 LEARNING OBJECTIVES

After studying this Unit, you will be able to:

- Understand broader principles of physical investigations in mentally ill persons;
- Know what all physical or laboratory tests can be required in a person with mental illness;
- Know what are routine laboratory tests that are done as part of health screen in persons with mental illness; and
- Know what are special tests that are done as part of physical investigation in persons with mental illness.

### 4.3 WHY PHYSICAL INVESTIGATIONS?

Broadly speaking, we all agree that mental health and physical health are interlinked. There is increased incidence in those having chronic medical illnesses to have mental illness and similarly mentally ill are at increased risk of developing medical illnesses. Studies have shown that physical health of mentally ill when neglected is associated with increased morbidity (sickness or illness) and mortality (death). This neglect happens due to variety of reasons besides poor economic and social support: 1) patients with mental illness may not voice their physical health complaints appropriately, 2) mentally ill persons may not follow with health related advice given by physicians, 3) sometimes mental illness treatment is given too much importance neglecting the physical health, 4) psychiatric medication induced side effects that are not detected early, 5) lack of accessible specialities of health services in the vicinity, and 5) lack of affordability of various health services.

#### Check Your Progress 1

**Note:**

i) Read the following question carefully and answer in the space provided below.

ii) Check your answer with that provided at the end of this unit.

1) Mention the causes for increased morbidity and mortality in persons with chronic mental illnesses.

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By this time, we already know the broader causes for mental illness. Mental illness has biological, psychological and social components in its aetiology. According to this, every mental illness has underlying biological changes in body but these can be too miniscule and too non-specific to be detected or attributed as causing the mental illness in routine
physical tests in clinical practice. Such mental illnesses are called as functional just to differentiate them from organic, or substance induced. Here, term substance is used to mean ‘drug that can be abused, which can produce dependence and not prescribed by any physician’. Examples for substances include: alcohol, cannabis, opioids, etc.

When a person shows symptoms of mental illness it could be due to organic factors, could be due to substance abuse, could be due to medical conditions or sometimes due to medications used for treatment of medical conditions. When these all conditions are ruled out, we label the psychiatric disorder as functional. This is the main reason why psychiatrist will ask about medical conditions already diagnosed, about any treatment already received for the same and certain questions to rule out organicity, questions about substance use particularly on last use of substance.

**Box 1**

A 45 year old, engineer developed stroke and was admitted with paralysis of left side of the body. When he was improving in the hospital he started showing symptoms suggestive of mania. He did not have any mental illness in the past, and there was negative history of mental illness in the family. He used to smoke regularly before this stroke developed. On examination he was orientated, conscious, with weakness of left side of the body. Physical investigations were within normal limits, except for CT scan of the brain- showing white opacity in the right frontal region, suggestive of bleeding in the brain matter.

There are literature support of such cases developing mania after bleeding in the right half of the brain and the time sequence developing mania of following stroke, absence of past or family history of mental illness, in this person all point towards organic mania.

Implication of this diagnosis: mania may persist as long as damage to that part persists, this person may be sensitive to medication side effects hence require to be started with lower doses of medication. This shows importance of taking clinical history and corroborating with appropriate physical investigations.

Organic versus functional mental illness concept is important as former states that there is identifiable cause leading to manifestation of mental illness and if that organic factor can be identified and appropriately managed, then symptoms of mental illness disappear or respond better to psychiatric medications. If there is no previous personal or family history of mental illness prior to this and organic factor found has been attributed with onset, then it strengthens case for organic cause of mental illness. If organic factor could not be corrected or removed, it will decrease the chance of mental illness responding to psychiatric medications and sometimes persons tend to have increased sensitivity to side effects requiring use of lower doses of psychiatric medications in them.

Psychiatrist, being medical professional takes into account age, vital parameters like pulse, blood pressure, physical and neurological bedside examination to detect any abnormality to guide his management plan of the mental illness. Psychiatrist is the better person to decide which types of tests are required in a particular case. We will discuss now various tests and broad principles underlying requirement for physical or biological or laboratory investigations in persons diagnosed with mental illness.

**4.4 WHICH PHYSICAL INVESTIGATIONS?**

A range of medical and neurological conditions may present initially to the psychiatrist. These conditions include multiple sclerosis, Parkinson’s disease, dementia of the
Alzheimer’s type, Huntington’s disease, dementia caused by human immunodeficiency virus (HIV) disease, and temporal lobe epilepsy. Any suspected medical or neurological condition should be thoroughly evaluated with appropriate laboratory tests and consultation.

Following is simplified arrangement of various tests that are done in mentally ill persons. Not all tests are required in each person. Appropriate selection of tests is the key in good utilization of resources. Remember that there is no laboratory or physical tests in psychiatry that can confirm or rule out diagnoses such as schizophrenia, bipolar disorder, and depressive disorder.

### 4.4.1 Routine Tests

These are tests that are usually done as part of health screen in any person who has come for health check up. Main purposes of getting these tests is to;

1) Screen for concurrent disease that might be existing along with mental illness
2) Rule out organicity, and
3) Establish baseline values of functions to be monitored (to early detection side effects on body organs of certain drugs.

#### 4.4.1.1 Routine Tests as Health Screen

Most persons in India do not visit doctors for health check up unless they have a problem. When a person with mental illness makes his first contact with clinician, this opportunity be used for physical health screening. Blood tests which are done routinely as part of health screen can are usually done in such case. These include haemoglobin, complete blood count, differential blood count, renal and liver function tests, fasting blood sugar. It is also better to record height and weight of the person. Some consider urine sample testing also as routine testing. This helps to establish baseline values of these tests so that we can compare any future alterations in these and detect abnormalities by chance so that they can be corrected. Ideally such tests are done before starting any medications.

Some persons may be at risk for developing obesity, blood lipid abnormality, hypertension and diabetes either due to their family history, or due to their sedentary lifestyle. These risks tend to be exacerbated by certain antipsychotics and mood stabilizing medications in the long run as these medications may be required for long term even after improvement of mental illness. These can be prevented by prior knowledge about these illnesses in the family and knowing the risk profile of persons with mental illness by way of dietary and lifestyle change advice.

During such routine investigations many people found as having medical illnesses can be advised to take treatment for those conditions along with that of mental illness. All medications given for treatment of mental illness are called psychotropics and these can cause alteration in blood parameters like haemoglobin level, blood count, blood sugar, lipid profile besides weight change. These alterations can be sudden requiring immediate attention or can be gradual, thus acting as risk factors for developing cardiovascular disease in long turn. This all increases morbidity and mortality in such persons and these can be prevented by routine blood tests and appropriate health advice.

#### 4.4.1.2 Routine Tests for Monitoring Adverse Effects

Sometimes person is already having medical condition for which he is on treatment and develops symptoms of mental illness. In such cases, psychiatrist would like to have routine blood tests and some specific tests to know the status of underlying medical condition so that these can also be monitored and this helps psychiatrist to choose
appropriate medication that is least likely to influence already deranged blood parameters or underlying medical condition. For example, a person with known hypertension, diabetes and dyslipidemia on treatment from a physician comes for treatment of newly developed mental illness, then we would like to know what is the status of these parameters in the person currently irrespective of whether he is taking medications for these or not. Persons on antipsychotics that are likely to suppress blood cell formation may require frequent blood tests to know complete and differential blood count.

4.4.1.3 Electrocardiogram (ECG)

Regularity of heart activity can be checked by electrocardiography (ECG). All persons who are likely to be treated with psychotropics routinely are advised to undergo this test. Many psychotropics alter heart rhythm at higher doses, and this risk is more even with lower doses if already there are heart rate and rhythm abnormalities in the ECG at baseline before starting psychotropics. Persons with previous heart attacks, those with regular tobacco users and those are selected for electroconvulsive therapy (ECT) need to undergo ECG. ECG is also advised in persons with suspected drug overdose to detect status of heart activity.

4.4.1.4 Pregnancy Test

All woman of child bearing age, unless they are very sure of their regular periods and not reporting missed periods, or following contraceptive methods will require pregnancy test routinely. No psychotropic is safe during pregnancy in respect to its influence on the foetus and pregnancy is one of cause for amenorrhoea, and many antipsychotic also tend to cause amenorrhoea. To avoid these clinical confusion it is better to elicit this history and if it is doubtful then urine based simple pregnancy tests can be done or referral to obstetric and gynaecologist can be made before starting medications.

Some women already on treatment for mental illness become pregnant and reveal it to their psychiatrist. In this condition, it poses dilemma whether to stop psychotropics and take risk reoccurrence of mental illness or continue to prescribe the psychotropics which may have already posed risk to developing foetus in the womb. Major bad influence of psychotropics on foetus like, organ malformation (teratogenicity) is well known. Only for few psychotropics and for most other psychotropics it is not known as to what good or bad influence they can have on the foetus and what are its influences in the long term if delivery of newborn exposed to such psychotropics in the uterus does occur. Such data is lacking because of lack of studies and moreover most medications during research trial never include pregnant women to know their safety on ethical grounds. In this condition, they need to reveal and be under supervision of obstetric and gynaecologist. Decision to terminate or continue with current pregnancy is made by the woman in collaboration with psychiatrist and the obstetrician.

Check Your Progress 2

**Note:**  i) Read the following question carefully and answer in the space provided below.

ii) Check your answer with that provided at the end of this unit.

1) Mention routine tests and their purposes in persons with mental illness.

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4.4.2 Special Tests

These are done based on clinical indications and mainly to rule out organic factors underlying mental illness, to find adverse effect on certain medications, to screen for substance abuse. Mental illness due to organic cause, means that there is clear identifiable cause exist which is directly or indirectly interfering with current brain functioning and which is removed helps in improvement of the manifest mental illness. Those with first time showing psychiatric symptoms, older age at onset of psychiatric symptoms, absence of past personal or family history of psychiatric illness and absence of substance abuse, all point towards organicity and following tests may help in this.

4.4.2.1 Routine Blood Tests

As mentioned above, there may show abnormalities in blood sugar, serum electrolytes or in other parameters. For example, liver and renal function abnormalities as in cases of renal failure or liver failure may present with abnormal behaviour due to interfering with brain functioning conditions called encephalopathy.

<table>
<thead>
<tr>
<th>Box 2</th>
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<tbody>
<tr>
<td><strong>Some neurological conditions that may manifest with mental illness symptoms</strong></td>
</tr>
<tr>
<td>Cerebrovascular disorders (haemorrhage, infarction)</td>
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<td>Head trauma (concussion, posttraumatic hematoma)</td>
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<td>Epilepsy (especially complex partial seizures)</td>
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<td>Brain tumours</td>
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<td>Parkinson’s disease</td>
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<td>Multiple sclerosis</td>
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<tr>
<td>Dementia</td>
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<td>Migraine</td>
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<td>Neurosyphilis</td>
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<tr>
<td>Viral meningitis and encephalitis (e.g., herpes simplex)</td>
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<td>Brain abscess</td>
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4.4.2.2 Thyroid Function Tests (TFT)

Thyroid abnormality can be detected on clinical examination. It is clinical experience of many psychiatrists that hyperthyroidism may present like anxiety disorders, psychosis, or mania, and hypothyroidism may present like, dysthymia and depression. Thyroid function tests are therefore indicated in cases of new onset of a mental illness. In this connection blood tests of thyroid hormones (T3, T4 and TSH) are helpful and if found abnormal correction of these helps in better response of mental illness to psychotropics.

Medication like lithium, given as mood stabilizer for long term in persons diagnosed with bipolar disorder may cause thyroid dysfunction. So such persons require a baseline TFT before starting lithium to rule out already existing thyroid dysfunction and later at regular interval testing to identify early any thyroid dysfunction and alter treatment appropriately. Other tests like, Thyrotropin-Releasing Hormone (TRH) stimulation test and Dexamethasone-Suppression Test are used in laboratory diagnosis of depressive disorders and to predict response to treatment. However, these tests are not specific and results vary widely, hence not used in clinical practice.
4.4.2.3 Nutritional Deficiency-Vitamin Levels

Some psychiatric illnesses have been found to be associated with nutritional deficiencies mainly vitamins. Whenever there are behavioural manifestations along with neurological signs or with memory problems, blood levels of vitamin B12, thiamine, niacin and folic acid are tested. If these levels are low then identifying the causes for their low level and correcting them helps in better response to psychotropics. Increasing age, gastrointestinal absorption problems, poor dietary intake and chronic alcoholism could be some of the common causes for low levels of vitamins in such cases.

4.4.2.4 Blood Tests for Sexually Transmitted Disease

When a person presents with mental illness and also has unexplained significant weight loss, episodes of fever should raise suspicion infections. Tests for HIV, Syphilis and Hepatitis B and C virus markers can be done in persons with high risk sexual behaviour, or those with history unsafe injecting drug use currently presenting with symptoms of mental illness can be tested for these with their consent. Sometimes, HIV-infection of brain may present as case of dementia.

4.4.2.5 Electroencephalogram (EEG)

EEG is a recording of a summed up electrical activity of the superficial layers of the brain. Whenever there is clinical suspicion of epilepsy either generalized or partial complex epilepsy, EEG helps in identifying abnormality and sometimes localizing part of the brain from which abnormal activity is coming. When person is not having active convulsions, still there can be abnormal electrical activity that can be recorded by this technique, which helps in the diagnosis of seizure. This is done by way of placing electrical activity recording conductors over specific areas of the head. It can be recorded during awake state and during sleep. Patient has to be co-operative for this test. Recorded activity needs specially trained person to read it and interpret it. Some deep seated abnormal activity of the brain may not get detected. Video-EEG is an advanced version of this where a person’s brain electrical activity is continuously monitored in a room along with video recording of the person. Both his behaviour and same time electrical activity are recorded simultaneously and helps in correlating both. This is particularly useful when seizures are not generalized, not typical in occurrence and in cases of suspected pseudo-seizures (dissociative convulsions). Partial complex seizures manifest with abnormal episodic behaviour resembling mental illness. There is no loss of consciousness, no sudden fall, no incontinence and no tongue bite as seen in a typical generalized seizure, commonly known as convulsions or fits.

If the person is already diagnosed case of seizure disorder and is on antiepileptic medications, EEG helps in knowing current status of the seizure control even when convulsions are not evident clinically. In a person having family history of seizure, and who are about to be started on antipsychotics that are likely to induce seizure at higher doses, and before a planned ECT, usually EEG is requested. Besides suspected cases of epilepsy and to rule out organic factors for mental illness, EEG is also used in evaluating sleep disorders.

4.4.2.6 Imaging Tests for Persons with Mental Illness

4.4.2.6.1 Chest-X-ray

This is not done routinely, only when a person is over 45 years, chronic smokers, or selected for electroconvulsive therapy or as part of medical evaluation for fever or unexplained weight loss. Women of child bearing age are usually not exposed to x-ray tests.
4.4.2.6.2 Ultrasound Abdomen

In those persons who have used alcohol for many years and on physical examination and in laboratory tests for liver function show evidence of liver damage then it is advised.

4.4.2.6.3 Computerised Tomography (CT) of Head

Computerized Tomography of brain is nothing but x-ray of the head taken repeatedly and constructed by computer to give two dimensional images of the head. Hence, there is risk of radiation exposure as it happens in case of taking chest-x-ray. It is less costly, less time consuming and available in most cities when compared to MRI brain. This helps in identifying trauma to skull bones that cover the brain, any space occupying lesions like tumours, blood or any abnormal calcium deposits in the brain matter. Usually, any trauma that leads to fracture of the skull bone also leads to damage to underlying brain. Whenever there is sudden onset altered sensorium, following blow to head, or specific neurological abnormalities along with severe headache in person with known hypertension may be candidate for CT brain. In persons who are presenting for the first time with psychiatric illness, with atypical symptoms, not responding to usual treatment with psychotropics even after weeks to months of adequate doses with full compliance, or who show appearance of side effects at lower doses of psychotropics and there is absence of past personal or family history of psychiatric illness, are considered for CT brain as a work up to rule out organicity. Even with all above points taken into consideration, the yield of CT brain to deliver positive evidence of organicity is very less. Hence, judicious use of imaging tests is to be used it is not replacement for clinical physical and mental status examination.

4.4.2.6.4 Magnetic Resonance Imaging (MRI) Brain

This much advanced imaging technique of the brain that does not involve radiation. Takes longer time to scan the brain and to get brain image person has to lie down calm in big machine. This is sometime very frightening for even healthy persons. This machine operates in artificially created strong magnetic field, it is usually kept in a room separated from other areas and persons before entering the machine should make sure that they do not have any kind of metal with them or inside their body like artificial cardiac pacemakers, metallic bone nails or fixatives. Some suspicious findings in CT scan of the head can be more clearly identified in MRI brain. Apart from those that are detected in CT scan of the head, MRI brain helps in identifying abnormalities of nerve fibres, locating abnormalities to specific areas of the brain are much better. Another advantage is visualizing blood vessels using contrast materials to enhance their appearance and visualizing spinal cord, as latter is difficult to be seen in CT scan due to bones covering the entire spinal cord.

<table>
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<th>Box-3</th>
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<tbody>
<tr>
<td><strong>Some medical conditions that may manifest with psychiatric symptoms</strong></td>
</tr>
<tr>
<td>1) Endocrine</td>
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<tr>
<td>Hypothyroidism</td>
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<tr>
<td>Hyperthyroidism</td>
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<tr>
<td>Hypoglycemia</td>
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<tr>
<td>2) Metabolic and systemic</td>
</tr>
<tr>
<td>Fluid and electrolyte disturbances</td>
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</tbody>
</table>
Hepatic encephalopathy
Uremia
Hepatolenticular degeneration (Wilson’s disease)

3) Toxic
   Intoxication or withdrawal associated with drug or alcohol abuse
   Adverse effects of prescribed and over-the-counter medications

4) Nutritional
   Vitamin B₁₂ deficiency (pernicious anemia)
   Nicotinic acid deficiency (pellagra)
   Folate deficiency (megaloblastic anemia)
   Thiamine deficiency (Wernicke-Korsakoff syndrome)

5) Infections
   Acquired immunodeficiency syndrome (AIDS)
   Viral hepatitis
   Tuberculosis
   Systemic bacterial infections (especially pneumonia)

6) Autoimmune
   Systemic lupus erythematosus

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Check Your Progress 3

Note:
   i) Read the following question carefully and answer in the space provided below.
   ii) Check your answer with that provided at the end of this unit.

1) What does CT scan head/MRI brain is indicate in persons with mental illness?

4.4.2.6.5 Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET)

SPECT Brain and PET Brain are newer techniques of imaging brain activity in real time, that is behaviour or psychiatric symptoms can be correlated with brain activity in specific areas of the brain as and when they occur. These techniques use short lasting radioactive tracer material injected in the body, which gets collected in the brain cells and this can be recorded by radioactivity capturing camera. It works on the principle that regions of brain showing higher activity will have relatively more blood flow and subsequently will show more radioactivity. This way entire brain surface flow and pattern
of blood circulation can be generated with colour coded indicators through computer software. It has been found to be useful for detecting locus of seizure activity in the brain. Currently it is used mainly in research field in psychiatry.

4.4.2.6.6 To Screen Substance Abuse: Breath Analyzer and Urine Screen

These tests are not done routinely. Whenever substance use is suspected but can not be relied on the person either due to uncooperativeness, due to altered sensorium or due to his psychotic state, these tests are done. For alcohol use, breath will give hint if person is intoxicated, and some use breath analyzer to detect alcohol in breath and rarely blood alcohol concentration is done especially for legal purposes. Most other substance when used do get eliminated from various mechanisms and one route they get eliminated is through excretion in urine. By testing urine for different commonly abused substances prevalent in locality from which person has come, we will be able to tell if the person has used any such substance in the preceding few days. However, cannabis and benzodiazepine on chronic use continue to be detected in urine testing even many weeks after their last consumption.

In persons when they are about to be started on aversive or antagonist medication for a substance as part of de-addiction clinic treatment urine test can be done to confirm that body is free of substance in order to avoid reaction with antagonist. Persons on regular treatment in de-addiction clinics can be asked to give urine sample for testing to detect any intermittent use of substance as an objective test. This stands as testimony to person’s self-reported abstinence from the drugs of abuse. Urine drug screening serves mainly three purposes: 1) to ensure compliance to treatment, 2) objective test for abstinence, 3) detect misuse of other drugs of abuse 4) to detect early relapse to drugs of abuse for which person was taking treatment.

4.4.2.6.7 To Monitor Drug Levels in Blood

Certain medication given for treatment of mental illness have to be maintained at particular range of their blood levels, below which it is not effective and above which its side effects are more. One such drug is lithium. Enough oral dose of lithium is given so that it maintains required blood level in the body. This can be checked first time from morning blood sample taken while on empty stomach, after 5 days of consistent same dose of lithium use and can be repeated every few months to ensure its blood level remains in the required range. This can be used as indirect tool for assessing compliance and in cases where toxicity symptoms appear or person goes into altered sensorium due to any cause; lithium level estimation helps to rule out lithium toxicity as it could be one of the cause for such condition. Lithium toxicity can happen either due to dehydration, or due to drug interactions, or by concurrent medical illness or by accidental overdosing or by intentional overdosing by the person.

Some persons with usual dose of medications either do not show improvement in symptoms or show more side effects than usually seen with other persons taking same amount of medications. If drug interaction is ruled out, then serum level of the same drug will help us detect their level and if compliance is not doubted this could be due to high or low metabolizing conditions of the person’s body. Routine use of drug level monitoring of antidepressants, and antipsychotics is not done. Clinical examination and corroborative information from family members or friends is enough in most cases to know whether certain drugs are causing too much side effects or being used by patient higher than advised doses, or person is not showing any response due to poor compliance to medications regimen.
4.5 LET US SUM UP

Some physical tests are required routinely as part of general health check-up and these also act as baseline values to monitor any adverse effect if they develop while on medications. Same routine tests can be valuable in ruling out organicity of mental illness. A pregnancy test in woman is necessary to avoid unwanted exposure to psychiatric medications. Thyroid function test is special test but done routinely in elderly, and in women coming for first time with mood disorders or psychotic illness and in those not responding to mood stabilizers. Whenever substance use history is not elicitable but suspicion exist as one of the contributory for current mental illness symptoms then urine screening for drugs of abuse can be done. ECG, EEG and imaging techniques are used as health screen and as part of specific requirement based on the person’s clinical profile.

Particular types of physical test requirement are also governed by accessibility, affordability, disadvantages, and patient’s choice besides specific indications. All said and done, no physical test is going to confirm or refute a diagnosis of mental illness. Clinical examination and patient observation are must components to proper health care delivery to persons with mental illness.

4.6 GLOSSARY

Substance : This is an alternate name to group of drugs that are likely to be used for non-medical purposes, likely to cause dependence on them. These are commonly known in lay term as ‘drugs’. To avoid confusion when these are medically prescribed and used as ‘drugs’ persons on their choice, we may prefer to call these as substances of abuse.

Alcohol : It is a generic name for ethanol. Depending various concentration of ethanol and other additives it is available with different names-beer, wine, whisky, brandy, rum etc.

Cannabis : It is pharmacological agent that is present in bhang, ganja or hashis, all derived from the same plant.

Opioids : All pharmacological agents that on opioid receptors of brain are opioids. These can be heroin, codeine, morphine and pentazocine. Many of them have medical uses mainly in control of severe pain but are also abused by some.

Psychotropics : Any chemical that acts through mainly altering brain neurotransmission or brain chemicals are called broadly called as psychotropics. These drugs alter thinking, emotions and perceptions. These group includes all psychiatric medications and also all substance of abuse. In this Unit it is used only to mean psychiatric medications. Psychiatric medications are devoid of causing euphoria or causing dependence, but many are required to be continued on long term just to avoid reoccurrence of symptoms of mental illness.

Antipsychotics : Psychiatric medications given for treatment of psychotic symptoms.

Mood stabilizers : These psychiatric medications which are supposed to prevent episodes of depression or mania in persons diagnosed with bipolar affective disorder

Complete blood count : Number of white blood cells, red blood cells and platelets per cubic mm of blood. These are main components of blood count test.

Differential blood count : Number and percentage of different types of white blood cells per cubic mm of blood.
Renal function tests: Functioning of kidney in routine tests is indirectly inferred from blood urea measures, electrolyte levels, serum creatinine levels in absence of clinical symptoms of kidney failure.

Liver function tests: Functioning of liver in routine tests is indirectly inferred from liver enzyme activities, and bilirubin levels and serum proteins.

Obstetrician and gynaecologist: Medical specialist who deals with pregnancy, delivery and genitourinary problems of women.

Breath analyzer: It is an equipment that detects alcohol level when breath is blow inside it from the mouth of the suspected intoxicated person. Similar equipments are used by traffic police to check breath alcohol level in drivers.

Health Screen Tests: Tests that are easy to administer and easy to pick up any abnormality in short time. Their reports need verifications as some of them may be falsely labelled as abnormal.

Relapse: Return to previous pattern of dependent drug use after a period of abstinence.

Abstinence: In relation to substance use, it means a person is totally free from use of dependent drug.

4.7 ANSWERS TO CHECK YOUR PROGRESS

EXERCISES

Check Your Progress 1
Following are some of the causes for increased morbidity and mortality in persons with mental chronic mental illnesses:
1) Increased risk of self neglect
2) Increased risk of substance abuse and dependence
3) Increased suicide risk
4) Not able to follow healthy diet and lifestyle changes
5) Increased risk of developing metabolic abnormalities secondary to medications
6) Difficulty in communicating physical health complaints
7) Difficulty in accessing and affording various health services

Check Your Progress 2
Following are routine physical tests and their purpose for a person with mental illness:
1) Routine physical tests include: Height, Weight, Pulse and BP
2) Routine blood tests include: Haemoglobin, Complete and differential blood count
3) Renal and liver function tests
4) Fasting blood sugar
5) Pregnancy test (in woman of child bearing age)
6) Lipid profile
7) ECG
Main purposes of these routine tests:

1) To screen for coexisting medical illnesses
2) To have these as baseline values to monitor in future for any adverse effect of treatment
3) To rule out organicity

Check Your Progress 3

Following are the common indications for CT scan head/MRI Brain in person with mental illness:

1) History of significant head trauma (i.e., with extended loss of consciousness, neurological deficits or temporally related to mental status change in question).
2) Abnormal neurological findings on examination (focal neurological deficits).
3) Sudden onset of symptoms of mental illness (including mood changes and personality changes) first time after the age of 50 years.
4) History of neurological symptoms (seizures).
5) Difficulties in memory and comprehension or decline in memory (delirium or dementia of unknown cause).
6) EEG report is abnormal.
7) Possibly for treatment refractory patients.

4.8 UNIT END QUESTIONS

1) Why pregnancy test is necessary in woman of child bearing age, before starting treatment?
2) What are the implications of having diagnosis of organic mental illness?
3) Name some medical and neurological conditions that may present with symptoms of mental illness.

4.9 REFERENCES AND FURTHER READINGS

