UNIT 1 HOW ELDERLY ARE DIFFERENT

Structure

1.0 OBJECTIVES

After going through this unit, you should be able to·

- describe the nature of pathologies in an elderly;
- enumerate the reasons for underreporting in elderly;
- discuss the procedure of history taking in elderly; and
- outline the process of examination of elderly.

1.1 INTRODUCTION

Geriatrics is general medicine in its broadest sense and is fully a multidisciplinary affair. Geriatrics is not just a medical diagnosis but a whole person diagnosis. Often it is quite difficult to elicit a satisfactory history. Also aging is associated with atypical presentation and multiple pathology. Further difficulties may arise because of inability to decide which changes are due to age and which due to disease. Successful geriatric practice demands meticulous clinical examination and appropriate investigation to detect all the pathology present followed by an assessment of priorities. In this unit, we shall focus our attention on the diseases complex in elderly and how these multiple pathologies effect the presentation of illnesses in an elderly. You will also learn how to take a proper history and undertake the examination in an elderly. Be sure to also go through the first unit of practical manual of this course (MMEL-005) to get a complete picture.

1.2 AGING PHYSIOLOGY

One of the fundamental physiological aspects of the aging process is the impairment of homeostatic mechanisms so that the milieu interior cannot be maintained in the face of environmental hostility. This renders old people vulnerable to various stresses. The decline in homeostatic reserve of each organ system is influenced by diet, environment, and personal habits and last but not the least the genetic factors.

Several important principles of aging include:

- Individuals become more dissimilar as they grow.
- Abrupt decline in any system is always due to disease and not to normal aging.
- Normal aging can be attenuated by modification of risk factors.
- In the absence of disease decline in homeostatic reserve causes no symptoms and imposes few restrictions in activities of daily living regardless of age.

A number of physiological changes takes place in the elderly.

The aged kidney is unable to respond to water deprivation by concentrating the urine to the same degree as the kidney of a young person. The kidney's role in the regulation of the ions in the plasma, and in the maintenance of acid-base balance also becomes impaired; these mechanisms continue to function adequately under normal circumstances but lose their reserve to meet unusual challenge. Defective homeostasis makes it more difficult to maintain a constant body temperature and is responsible for increased incidence of hypothermia in elderly.

You have already learnt in detailed about these physiological changes in Unit 1, Block 2 of Course 1.

1.3 AGING PATHOLOGY

Degenerative changes, particularly in the arteries and joints are an almost universal accompaniment of aging and lead to a heavy burden of disease in old age. Malignant disease also becomes increasingly common with advancing years and the majority of death from this cause occur after the age of 65 year. Infections play a large part in terms of both mortality and morbidity and affect particularly the respiratory and urinary tracts. The effects of trauma are also frequently encountered, mainly due to falls and other accidents in the home and include fractures in the region of the hip, fat embolism, subdural haematoma, collapse of vertebral bodies and other fractures. Presentation and diagnosis of diseases and disorders in the elderly are influenced by many factors. These are:

- Multiple pathology
- Under reporting of illness
- Attitude of relatives.

1.3.1 Aging and Disease Process

It is not always easy to distinguish between the changes which are attributable to age and those which are attributable to disease, e.g. osteoporosis, atherosclerosis, impairment of the control of body temperature, maintenance of blood pressure or change of posture etc.

Be careful in the interpretation of signs which are usually important in younger patients. In the elderly the same changes are sometimes completely innocent and occur in the absence of disease. So allowances must be made for these changes in the clinical examination.

Examples:

- Small, constricted pupils may simulate Argyl Robertson pupil.
- Hand muscle wasting may be normal in old age in the absence of any other associated signs.
- Senile purpura and hirsutism are normally seen in elders.

1.3.2 Multiple Pathology

When dealing with young patients it is customary to try to explain every symptom and sign and abnormal laboratory finding in terms of single pathological process. This approach is completely inappropriate in the old. Once people are in their eighties, they commonly show evidence of several different pathological process, some active and others inactive, but nevertheless contributing to the total disability.

Cataracts, deafness, degenerative joint diseases, like osteoarthritis or osteoporosis, varicose veins are all conditions which are likely to develop slowly and to progress. Disorders such as anaemia and cardiac failure which have been diagnosed earlier can be kept under control by continued medications. Others like a hiatal hernia or diverticular disease will probably whisper of their continued presence down the year. Cancer, pernicious anaemia, thyrotoxicosis, myxoedema are all common due to the deterioration of immune mechanisms. Obesity, diabetes, depression, also occur more frequently in the old. A complete diagnosis must take all these problems into account and must also make some attempt to allocate to each its priority and its activity.

A problem oriented approach is essential. Now you must have realised that, multiple pathology is a common entity in elderly.

1.3.3 Missing Symptoms

Because of the relative immobility of many elderly patients symptoms related to exertion may fail to be evoked. Thus angina pectoris and intermittent claudication are encountered far less commonly than would be predicted on the basis of the high prevalence of vascular diseases. Similarly patients with severe cardiac or respiratory diseases may not complain of exertional dyspnoea.

Sometimes a consequence is that effective treatment of a disabling condition such as Parkinsonism may result in the uncovering of a latent symptom because of the increases in the degree of exertion the patient can undertake.

Some of the diseases become less common in older age groups for unknown reasons e.g. infective hepatitis or acute glomerulonephritis are practically never seen in old age. Some diseases of a highly lethal nature and whose incidence rises with age are paradoxically eliminated at earlier ages. Thus severe hypertension or severe bronchitis are not often encountered in patients over 80 years.

1.3.4 Masking by Known Diseases

One unfortunate consequence of multiple diseases is that the symptoms and signs or a new disease may be wrongly attributed to the old diseases already diagnosed. Patients with extensive osteoarthritis or rheumatoid arthritis who have multiple falls may sustain a fracture of the femoral neck which is overlooked because the pain and immobility can be readily explained as due to exacerbation of the arthritis. Osteomalacia too can readily be missed in arthritis patients. An increase in the cardiac failure of a patient with long diagnosed valvular heart disease may be due to a new development such as thyrotoxicosis or subacute bacterial endocarditis. Patients themselves may ascribe their present symptoms to their old diseases so the physician must avoid being misled and should always considered the possibility of new additional diagnosis.

Check Your Progress 1

1) Thermoregulation in old age is
   a) Normal
   b) Decreased
   c) Increased
   d) None of the above

2) Presentation of disease in elderly are mostly typical in nature. (True/False)

3) Few conditions that occur commonly in elderly due to deterioration of immune mechanism include ....., ..., ..., and .....

1.4 UNDER-REPORTING IN ELDERLY

In most cases, the diseases are not reported to a doctor. There is both casual attitude of the elderly and the relatives since the diseases are to be more frequently occurring and considered as a normal accompanied of old age.

1.4.1 Callous Attitude Towards Health

The elderly can be forgiven for taking a somewhat pessimistic view of what life in general and medicine in particular have to offer. This is summed up by the phrase one often hears while talking to an elderly man "well, what can you expect at my age". The consequence is that the elderly often fail to seek medical advice. Thus, it is well established that there is gross under-reporting of ill health in the elderly. Presumably this is because older people and their relatives ascribe each and every decrement in health and mobility to 'just old age'. Dementia, depression, locomotor diseases, urinary tract infections, diminished vision and deafness are particularly under-reported. Thus the illnesses known to the family doctor are only half the story. There is a lot more that he does not know about unless he sets to, find out. This is a worthwhile object because much of the illness and disability can be alleviated by quite simple means. Even when diseases are found for which there is no definite treatment e.g. senile dementia, inoperable cancer, the knowledge gained will allow better overall management including domiciliary support.

1.4.2 Attitude of the Relatives

The usual attitude of the relatives towards elderly is to attribute the symptoms pertaining to disease towards aging and thereby leading to unnecessary delay in notifying the diseases. Unless the problems are acute or severe, the relatives would not have taken the elderly to the physician. The relatives should develop the tendency not to neglect any minor ailments in elderly, just in the same manner they used to handle their children. Looking at another angle, more often the caring relatives are elderly themselves; if the patient is 95, the daughter caring for her may be well within the geriatric age group. Children may be too far away to help, penalty of modern social mobility. Bereavement or illness of helper can strike a severe blow to the ill or disabled old person both in terms of the loss of physical help and its effect on morale.

1.5 HISTORY TAKING

Usually, there will be not any problem in history taking in adults, but this rule will not be applicable in old age. Commonly, the elderly people will complain of sleeplessness, constipation or loss of appetite invariably to any disease and thereby not giving particular emphasis towards important problems. Also the sequence of events may become fragmented. For example, instead of chest pain, the patient will complain of constipation. So persistent careful questioning of the

patient, relatives and others must be required to draw out the necessary information. Further difficulties may arise because of the inability to decide which changes are due to age and which to disease and because of the usual concurrence of several diseases. History taking in an elderly is an art. You need to spend more time and be patient with the patients.

1.5.1 Barriers to Obtaining Proper History

A deterioration in higher functions like memory and senses like hearing may cause some kind of hinderance to a proper history.

1) **Mental Confusion**

Mental confusion is commonly present in association with serious physical illness in the elderly and indeed the patient may be totally incoherent. At times patients can keep up a misleadingly effective conversational façade so that much time may be taken up with the history before it becomes apparent that the patient's account is quite unreliable because of its internal inconsistencies. Because of such instances, the administration of some brief form of routine mental test can be useful in alerting the doctor. However, if care is taken, quite severely demented patients may be capable of giving a history that is of value, although this will need to be carefully cross-checked by interviewing relatives or neighbours.

2) **Deafness**

The common occurrence of deafness in the elderly is another major barrier in history taking. One danger resulting from this is that the doctor tends to assume that all old patients are deaf and falls into the error of speaking loudly in every case. Many elderly are offended by this activity. When the patient is recognized as being deaf, it is more helpful to speak slowly and clearly, and in a position where ones face is clearly visible so as to give an opportunity for lip reading. The extra information from lip reading even in those who are not particularly expert, may make a great contribution to their understanding of what is partially heard. Furthermore the eye contact which results from face to face conversation is an important factor in maintaining the patient's concentration and attention. It is important that a patient with a hearing aid is encouraged to use it and the ill person may need help to fix and regulate it. Very deaf patients without hearing aids may call for other measures. An ear trumpet or the doctor's own stethoscope as a makeshift substitute may be helpful. Occasionally a special amplifier and headphones may be assistance when other aids are ineffective. When these methods fail, pencil and paper can be used. Not bothering to make the effort to communicate is likely to be very demoralizing to the deaf patient. Only few of the elderly deaf have knowledge of sign language so that it is not a useful skill for the doctor to acquire; however the potential usefulness or ordinary gesture is not be ignored.

3) **Concentration**

This is often poor in the elderly who are frail or confused and fatigue, inattention may develop after a very short time. So it is wise to split the history taking into several short sessions. Dysponea is a particular difficulty and detailed history taking may have to wait until some improvement has resulted from initial treatment.

4) **Co-operation**

As co-operation of the elderly is often less than ideal, an alternative can be physical contact like holding the hand of a nervous patient, reassuring hand on the shoulder or the more formal handshake could be very much effective. Despite all these efforts, depressed patients may still be hopeless and some may be very much aggressive.

5) **Idiosyncrasis**

As it is very difficult to obtain history from elderly, one has to make use of many more leading questions than is usual in taking a history from younger patients. However, the drawback is that, elderly are more likely to agree too readily to any question, confusion may also arise because

of the different use of language by the old person. For example, giddiness in a young person may refer to vertigo, but in elderly it is more often used to describe feelings of insecurity, unsteadiness, fear or falling or faintness.

1.5.2 Special Emphasis during History Taking

History taking in elderly is very much the same as in young patient except that emphasis must also be given to certain aspects like social history, mental health, assessment of activity and drug history.

1) **Social History**

Regarding social history, one needs to know what social support the patient has had and may expect in the further and what social pressures or changes may have affected his health and capacity for independence. Special areas of concerns are housing, finance, family support, isolation, support from social services and the nature of the patient, personal relationship with those supporting him. In taking the social history one may gain valuable insight into the patients personality, motivation and future plans.

2) **Mental Health**

Main concerns are in the recognition of depression, dementia and confusional states, all of which are common in the elderly.

3) **Assessment of Activity**

The levels of mobility and everyday activities should be obtained and must be compared with the past to know whether there is any deterioration and also to plan for rehabilitation.

4) **Drug History**

As elderly are more vulnerable to the effects of drugs, a detailed drug history should be obtained. In the exactly the opposite way, elderly may also forget to take important drugs, e.g. thyroxine for myxedema or digoxin, diuretics for cardiac failure, may lead to relapse of symptoms and increase in morbidity rate and hospital admission.

1.5.3 Atypical Presentation

Illness in the elderly can be quite different. Presentation may be obscure or misleading and the progress and outcome modified. The resulting slow physical, mental or social deterioration is all too easily passed off as due to senility and unless full use is made of history taking, examination and appropriate investigations, treatable disease may be missed with tragic consequences.

Pain

The key symptom of pain, which is so often the reason why a patient seeks —medical help, less commonly results from disease in the old. Even when pain does occur, it may be less severe or easily forgotten. The elderly commonly have considerable difficulty in giving an accurate description of the character and localization of pain.

Painless myocardial infarction is more common than the classical presentation with severe chest pain and shock. The patient instead present with the development of heart failure, a minor episode of confusion or a queer turn and there may be very little in the clinical picture to point out cardiac pathology. Painless vertebral collapse due to osteoporosis, absence of pain or abdominal discomfort in retention of urine are other examples. Diseases less often present in a florid and dramatic way in elderly subjects; the organs, it has been said 'suffer in silence'. An acute abdominal catastrophe is easy to recognize in the young, but in the old it is rare to find the same unmistakable picture of board like rigidity and agonizing pain and profound shock. Myocardial infarction is often painless and may cause the victim of feel a bit off colour, or to lose consciousness briefly, or to become confused; it may be completely silent or it may

present along with cerebral vascular accident. It is common to find an almost complete lack of the physical signs in pneumonia and old people like children tend to swallow their sputum. Evidence of this disease may be recognized only radiologically. The starting eyes and the hot, sweating, shaking hands and the irritable fidgeting of the young women with Grave's disease are consciously absent in her grandma with thyrotoxicosis.

Acute Confusional State or Delirium

This is a frequent, frightening, dangerous condition that is often missed in the elderly, yet often has a remediable cause and is amenable to treatment. The various causes of delirium include metabolic disturbances like hypoxia, hypothermia, hypo/hyperglycemia, acidosis, alkalosis, myxedema, thyrotoxicosis, infections like pneumonia, urinary tract infections, septicemia, meningo-encephalitis, drugs like anticholinergics, antihistamines, sedatives, hypnotics, homatropine eye drops, alcohol withdrawal, stroke, congestive cardiac failure, head injury etc. delirium is characterized by acute onset with fluctuating course with gross swings in attention, arousal and symptoms become worse at night (sun downing). The cardinal symptoms include lack of relevance and coherence of speech, decreased comprehension, altered sleep wake cycle, hallucinations and delusions. The commonest cause that one has to keep in mind while dealing with a case of delirium include infections like pneumonia, UTI and metabolic disturbances rather than intracerebral pathology. It is crucial to obtain information about systemic illnesses, drug use, recent trauma. One has to differentiate delirium from dementia, depression and acute schizophrenia. Now you must be clear that, it is very difficult to make accurate diagnosis in the elderly due to atypical presentation.

Altered Temperature Response: Illness less often results in fever, and rigors are very rarely encounted. Urinary tract infections or pneumonia are often accompanied by a normal temperature adding to the difficulty in diagnosis.

Hypothermia is also very common in elderly. The clinical picture is a characteristic one of a drowsy, confused patient with a pale and somewhat myxedematous general appearance, bradycardia and an abdomen which feels cold to the touch. The superficial resemblance to myxedema is further strengthened by the presence of "hung-up" tendon reflex. Rectal temperature with a low reading thermometer with adequate time to record is needed to confirm the diagnosis. Mouth temperature is misleading and value below 95^{0}F is usually taken as the dividing line.

Non-Specific Presentation: Presentation is frequently vague and ill defined and the clinical picture can be summed up as "Failure to thrive". The patient may experience tiredness, fatiguability and due to the lack of any clear cut symptoms, the patient may fail to seek medical help. Also the doctor may attribute all the symptoms to aging. The problem can be sorted out by careful history taking and meticulous physical examination.

Deterioration of Mobility: Some of the patients can present with gradual deterioration of mobility or with falls—again a situation which can easily be ascribed tb old age itself. Parkinsonism is a cause which is often missed because tremor is absent. It is a potent cause of both immobility and of falling about.

Peripheral Neuropathy: This may be common in diabetes is easily overlooked due to difficulties occurring during neurological examination. Other causes of falls include unstable knees, postural hypotension, vertebro-basilar insufficiency, Stokes Adams attacks, subacute combined degeneration of the cord and "premonitory falls" heralding acute illness such as pneumonia. Painful or deformed feet are another reason for immobility or unsteadiness, arthritic chances, corns and calluses or ingrowing onychogryphoses may also be responsible.

Bone Pains: These manifests as vague generalized musculoskeletal pain should not be too readily accepted as osteoarthiritis. It may be due to bony metastasis from lung, breast, prostate, multiple myeloma deposits and osteomalacia. Polymyalgia rheumatica, a variant of temporal arteritis is another disease which responds excellently to treatment arteritis is another disease which responds excellently to treatment with steroids may present with bone pain and malaise. It is diagnosed by very high ESR and confirmed by temporal artery biopsy.

Due to the aforesaid reasons, geriatric medicine is dominated by the four I's (four geriatric giant)—Instability, Immobility, Intellectual failure and Incontinence.

These four great symptoms of disability which inevitably have been seen to lead to pleas for hospital admission.

Check Your Progress 2

1) All are true of acute confusional state in elderly except:

   a) Commonly a manifestation of Urinary tract infection or pneumonia in elderly.

   b) Clinically resemble dementia and depression.

   c) Mostly due to space occupying lesion in the brain.

   d) Cardinal symptom is attentional deficit.

2) Pneumonia in elderly often presents with fever and cough with expectoration. (True/False)

3) The common complaints of elderly while history taking include ..... , ... and .....

1.6 EXAMINATION

There are a number of practical points to bear in mind.

The history may be discursive, the process of disrobing is laborious, and the examination, exhaustive, so that by the time of crucial part of the consultation is reached, the patient (and perhaps the doctor) is too fatigued to co-operate. It is essential to amass as much information as possible as you proceed.

General Physical Examination

Observed carefully the gait as the patient enters the consulting room or makes her way to the examination couch. It may yield clinical information such as foot-drop, or the 'stammering' pattern of cerebrovascular disease. It will be very likely to yield practical information concerning the patient's ability to look after herself.

A few simple preliminary enquiries (age, name of the doctor, how did you get here?), together with the history, will indicate the patent's orientation and grasp of her circumstances, and give a good idea of her mental function.

Are clothes, hair, nails kept clean? Dirt often indicates neglect and will alert the examiner to the possibilities of malnutrition, dementia, and hypothermia.

History-taking provides an opportunity for circumspect observation, and the initial overall impression and offers the best chance of spotting myxedema, Parkinson's disease, or Paget's disease of the skull.

Abrasions and bruises mean she has been falling about, whether she mentions it or not, and injuries are sometimes of non-accidental origin.

Fidgeting and inability to sit still are features of anxiety and of the generally hyperkinetic thyrotoxic patient—unless, on closer inspection, the movements are choreiform in character. Orofacial dyskinesia and other involuntary movement can be quietly analyzed during the interview.

The general inspection always embraces an assessment of the state of hydration. Because of the impaired homeostasis already referred to, the aged are especially liable to become dehydrated or edematous. A common finding, and one of serious portent, is the 'top and bottom syndrome' of dehydration of the upper part of the body and edema of the legs. The 'dry skin wet lung syndrome' is another familiar paradox which makes assessment of overall fluid balance very

difficult. Cyanosis, malar flush and coldness of the extremities may indicate a low tissue oxygen saturation resulting from a low cardiac output.

Can she see? Not such a banal question as it may appear. The answer is often neither yes or no, but 'a bit'. It is then necessary to answer some further questions: How much? Why? Would new (or clean) glasses help? Can she see enough for her needs, or is she debarred from activities she would greatly enjoy—sewing, reading, television?

- **The Chest:** Look for kyphoscoliosis, a very common finding which may betray metabolic bone disease. Displacement of the apex beat may be due to skeletal deformity, although it generally indicates cardiac enlargement. However, this in itself is very common, and is not necessarily of gloomy prognostic importance. In particular, it correlates poorly with ECG evidence of severe ischemia or hypertrophy.

- **The Abdomen:** Always consciously ask yourself if the bladder is palpable. The enormously distended bladder picked up on routine examination is a recurring source of surprise in the geriatric out-patient clinic.

- Always examine the rectum—not only for tumours, but for constipation (which may have been denied ten minutes previously), for black stools, and for enlargement or irregularity of the prostate. Physical signs of the acute abdomen are often hard to elicit. The absence of bowel sounds may be the only indication that something is amiss.

- **Cardiovascular System:** About 25 per cent of the elderly people will have absent dorsalis pedis and posterior tibial pulses. Apex beat is often difficult to feel as are the pulses in the legs and feet. It is often advantageous to examine the patient after exercise if that is a stimulus to symptoms. Blood pressure should always be recorded in supine and erect posture.

- **Respiratory System:** Few basal crepitations are quite normal in the elderly in the absence of cardiac failure or chest infection. Age changes in lung tissue as well as weakness of the accessory muscles of respiration mean that physical signs may be less evident. The most useful sign indicating lung disease is an increase in the respiratory rate rising to 28/ minute or more.

- **The Nervous System:** The chief difficulty lies in securing full cooperation. Absent ankle jerks are exceedingly common in persons over 75 years and are evidence of any specific neurological deficit. Distal impairment of vibration and position sense again seems to be a part of the aging process rather than a hallmark of disease. It may contribute to the unsteadiness of gait often found in extreme old age. The fundi may be difficult to see and the pupils may require dilatation.

- **Locomotor System:** Abnormalities are common and may limit mobility. The state of the feet should always be recorded; abnormalities are common and are frequently remediable thereby improving mobility. Examine while the patient is getting out of a chair or bed and during walking.

While examining the legs, check whether passive movement of the hips is full and look for inequality of limb length and rotation. Severe hip diseases and even fractures are sometimes picked up in this way. It is very difficulty to elicit and interpret the physical signs to diagnose meningitis is elderly. e.g. neck stiffness may be due to cervical spondylosis and inability to perform Kernig's sign due to arthritis of knees.

- **Endocrine System:** Small goitres are often present and are easily missed. The testes are often smaller and harder than normal. Loss of hair is evident over the body but it not associated with gross endocrine changes. Baldness is common.

- **Skin:** Skinfold thickness diminishes with age but most of the skin changes are likely due to over exposure to UV light. This also leads to malignant changes in the skin such as solar keratoses, basal cell carcinoma and squamous cell carcinoma. Note for mottled pigmented lesion of the lower limbs, erythema may be due to hypothyroidism.

Check Your Progress 3

1) All of the following statements regarding elderly are true except:

   a) Dorsalis pedis artery pulsations may be absent.

   b) Few basal crackles in the elderly is abnormal if associated with cardiac failure or chest infection.

   c) Absent ankle jerk is pathological in elderly.

2) History taking can be short if the patient is deaf. (True/False)

1.7 LET US SUM UP

Elderly patients differ in many ways from the young, indeed such distinctions underline the separate existence of geriatrics as a medical speciality.

- An Abrupt decline in any system of function is not attributed to "normal aging". Presence of atypical symptoms and signs, that is the organ system usually associated with a particular symptom is less likely to be the source of the symptom in older individuals than in younger one. Also, there is presence of multiple pathology.

- Gross under-reporting of illness by the elderly commonly occurs. There is altered temperature and pain response to illness. Due to diminished physiological reserve, occurrence of symptoms at an earlier state of the disease occurs.

- Occurrence of drug side effects at a dose that unlikely produces such side effects in younger patients is observed.

- Many abnormal findings in younger patients may be normal in elderly e.g. bacteriuria, premature ventricular beats, low mineral density, impaired glucose intolerance, uninhibited bladder contractions. Because symptoms in older people are often due to multiple causes, the diagnostic "law of parsimony" often does not apply.

Thus, a good geriatric practice requires skill, experience, over-view of all these aforesaid ideas, proper and detailed history taking without any shortcuts, meticulous physical examination, corroboration of the history with the physical findings and an ability to assess which changes are due to aging and which to disease and last but not the least a good understanding and rapport with the elderly.

1.8 KEY WORDS

Barrier : Hinderance

Idiosyncrasies : Physical constitution pecular to a person

Osteoporosis : Sofetening of bone due to loss of calcium

1.9 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1) b)

2) False

3) cancer, pernicious anemia, thyrotoxicosis, myxedema.

Check Your Progress 2

1) c)

2) False

3) sleeplessness, constipation, loss of appetite.

Check Your Progress 3

1) c)

2) False

1.10 FURTHER READINGS

Coni, Nicholas (1980), *Lecture Notes of Geratrics,* 2nd edn., Blackwell Scientific Publications, Oxford.

Hall, M.R.P., W.S. Mac Lennen and M.D.W. Lye (1993), *Medical Care of the Elderly,* 3rd edn., John Wiley & Sons Limited, England.

Tallis, Raymond Howard Fillit, J.C. Brocklehurst (1998), *Brocklehurst's Text book of Geriatric Medicine and Gerontology,* 5th edn., Churchill Livingstone, London.