

# **□ Geriatric /“Old age”/ psychiatry**

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# □ Introduction



➤ **Gladys Burrill 92** yrs.  
(Honolulu Marathon 2010).



➤ **Fauja Singh 100** yrs.  
(Toronto Marathon 2011  
guinness record)

# What is “Geriatric”/ “ old age”/?

## □ Definition

- Old age is **not a disease**.
- It is a phase of a **life cycle** characterized by its own developmental issues, many of which are concerned with:-
  - ✓ Loss of physical agility(alertness)
  - ✓ Mental acuity
  - ✓ Friends and loved ones
  - ✓ Status and power.

- Old age is associated with accumulation of wisdom and the opportunity to pass that on to the future generations.
- **Geriatric psychiatry** is the branch of medicine concerned with:-
  - ✓ Prevention,
  - ✓ Diagnosis and
  - ✓ Treatment of **physical and psychological disorders** in the elderly with the promotion of longevity.

- Persons with a healthy mental adaptation to life have been found to live longer than those who stressed with emotional problems.
- The developmental tasks of late adulthood that lead to **mental health** are;
  - ✓ Maintaining / keeping the body image and physical integrity.

- ✓ Maintaining / keeping sexual interests & related activities.
- ✓ Accepting the suggestion of **retirement** or stop working.
- ✓ Accepting changes in the relationship with **grandchildren**.
- **Aging:** is a pattern of life changes that occurs as one grows older

## ❖ Normal Aging

### ➤ Changes in the brain with advancing of age;

- ✓ Weight of the brain decreases
- ✓ The ventricles become enlarged
- ✓ The meninges become thickened
- ✓ The quantity of nerve processes decline
- ✓ Loss of cells and ischaemic lesions are present (brain)
- ✓ Decline in intellectual function and deterioration of short-term memory and slowness are features of ageing.

➤ Ageing can be **primary, secondary or both**.

❑ **Primary** - is inborn and natural, based on endogenous factors.

❑ **Secondary-** is due to untimely death of cells due to the disease processes.

## ❖ Ageing process

- **Gerontology**- the scientific study of the **biological, psychological, and sociological** phenomena associated with old age.
- **Gerontologists**- those who study the aging process - divide older adults into two groups:
  - A) Young-old = ages **65 to 74 years**
  - B) Old-old = ages **75 years & beyond.**
- ✓ Some use the term **oldest old** to refer to those **over 85 years.**

## ◆ Important terms of Gerontology:

- **Biological age:** is the relatively to **grow-old** or condition of a person's organs and body systems.
- **Psychological age:** refers to a person's **adaptive capacities**.
- **Social age:** refers to a person's habits and roles relations to society's expectations.
- **Functional age:** is how people compare physiologically to others of same age.

## ■ **Demography:**

- ✓ The number of individuals **over age 65** is rapidly expanding or increasing.
- ✓ For example in the US population, it was **4%(1900)**; **13.7%(2012)** and
- ✓ By 2050 it is projected to be about **20 %**.

## ◆ **Health Issues for an Aging Society:**

- As the number of older Americans **increases**, their financial and medical needs become critical issue.
- **Health care costs** to the individual elderly person will rise as medical care coverage becomes less adequate.
- **Housing and living arrangements** will be a problem for low-income elderly.

## ◆ Biology of aging:

- From the Latin **senescere**, “to grow old”
- Is characterized by a gradual decline in the functioning of all of the body’s systems;
  - ✓ Cardiovascular
  - ✓ Respiratory
  - ✓ Genitourinary, endocrine, immune, etc.
- Any one of a number of organ systems **begins to weaken** and this leads to **illness or death**.

## ◆ Health and functioning of older adults:

- Most people **age 65** & older have at least one chronic medical illness and many have multiple conditions.
- The most common illnesses affecting elderly people in the US are **arthritis, hypertension, and heart conditions**.

- **Sensory impairments** are also become significant.
  - ✓ For example; 65 to 74-year olds
    - 30% report problems **seeing** and
    - 18% report problems **hearing**.
- The rates are approximately **twice** as high for those **aged 85** and older.
- **Alzheimer's disease** ranked **6<sup>th</sup>** after **heart disease, cancer, cerebro-vascular diseases, respiratory diseases, and influenza or pneumonia**.
- These are among the causes of **death** for Americans aged 65 years and older.

## ❖ **Life expectancy:**

- In the US the average life expectancy of both **sexes** has increased in every decade.
- **In 2013**-77.4 years(men) & 82.2 years(women).
- Changes in **morbidity and mortality** have also occurred;
- ✓ In the past 30 years a 60 % decline has occurred in mortality from **cerebro-vascular disease** and 30% from **coronary artery disease**.

- On the other hand, **mortality** from cancer, which rises suddenly with age has increased, especially **cancer of the lung, colon, stomach, skin, and prostate**.
- ✓ This leads to the highest rate of psychiatric and medical co morbidities.
- Prevalence data for mental disorders in elderly persons vary widely.
- A conventionally estimate data shows **25%** have **significant psychiatric** symptoms.

- Contributing conditions the number of **mentally ill elderly** persons includes;
  - ✓ Stresses of aging, acute and chronic medical illnesses
  - ✓ Complicating drug "drug and drug "disease interactions.
  - ✓ One's job loss, voluntary and involuntary retirement resulting in loss of financial resources.

# Normal Aging process...

## □ Physical changes

- Different parts of the body begin their **involution** at different ages and **decay** at different rates.
- ✓ **With age**, the chemical composition of **bone** changes and **bones become less dense** and **osteoporotic**.
- ✓ Movements of **joints** become stiffer.
- ✓ **Teeth decay**, and may fall off restricting speech and eating.

- ✓ **Skeletal muscles** become fibrosed, less elastic and weak giving rise to stooped posture.
- ✓ **Skin** becomes less elastic and flabby with wrinkles.
- ✓ The **hair** becomes thinner and grey.
- ✓ **Special senses** become less efficient owing to generative changes.

- ✓ **Speech** becomes slower and high pitched due to atrophy of laryngeal muscles and slackening of vocal folds.
- ✓ There is slowing down of the **physiological systems** of the body.
- ✓ **Atrophy and cell death** occur in the nervous system and the endocrine system shows degenerative changes.

❑ **As people grow old, their use of medical services changes.**

➤ They consult doctors more often and occupy half of all general hospital beds, particularly those age over 75.

➤ The elderly have social problems

e. g., **lower earning and poorer accommodation than younger people.**

## **❑ Where the elderly people live?**

- Most live alone at their own home
- About half with spouse
- About 1/10 with their children
- Those who live alone, many see relatives, friends and neighbors regularly

- Some very isolated. In some cultures:-  
e.g. **Chines- the elderly are expect to live with their children.**

## □ Principles of assessment

- General health and
- Social circumstances of the elderly patients.

❑ The aim of assessment is to answer the following three questions:

- **Can the patients' care be managed at home?**
- **If so, what additional help is needed by the patient and family?**
- **Can the patient manage his/her financial affairs?**

## □ Assessment

- ✓ Medical examination
- ✓ Psychiatric evaluation
- ✓ (Hx. and MSE as well as formulation of social problems)

## ❖ History-taking

- If there is any **intellectual impairment or deafness-** interview any relatives or friends who can give information about the patient and may be involved in patient's care.

➤ Patients older than age 65 often have subjective complaints of **minor memory impairments**, such as:

- ✓ Forgetting persons' names
- ✓ Misplacing objects.

**□ During the interview, ask about:**

- ✓ Friends
- ✓ Social activities
- ✓ Hobbies and work.

❑ **Occupational Hx** should include the patient's feelings about work, relationships with peers, problems with authority and attitude toward **retirement**.

✓ Ask about **patient's plans** for the future.

✓ What are the patients **hope and fears**?

❑ **Family Hx** should include

➤ A description of parents' attitudes,

✓ adaptation to their old age if applicable and

✓ information about the causes of their deaths

- **Alzheimer's disease** is transmitted as an autosomal-dominant trait in 10 to 30% of the offspring of parents with **AD**.
- **Depression and alcohol dependence** runs in families.
- The patient's current social situation should be evaluated.
- ✓ Who cares for the patient?
- ✓ Does the patient have children?
- ✓ What are the characteristics of the patient's parent-child relationships?

- A **financial history** helps to evaluate the role of economic hardship in the patient's illness and to make realistic treatment recommendations.
- **Marital Hx** includes a description of the spouse and characteristics of the relationships.
- If the patient is a **widow or widower**, explore how grieving was handled?
- If loss of the spouse occurred within the past year, the patient is at high risk for an **adverse physical or psychological event**.

## ➤ Patient's **Sexual Hx** includes:-

- ✓ Sexual activity
- ✓ Orientation
- ✓ Libido, masturbation
- ✓ Extramarital affairs
- ✓ Sexual symptoms (e.g., **impotence and anorgasmia**).
- ✓ **Sexuality** is an area of concern for many geriatric patients, who welcome the chance to talk about their sexual feelings and attitudes.

## ➤ The information's required during assessment

- The **time and mode of onset** of symptoms and their subsequent course.
- A description of **behavior over 24 hours**.
- Any previous medical and psychiatric history
- The patient's living conditions and financial position.

- The patient's ability to look after him/herself, his/her finances, and to deal with hazards.
- Any **odd or undesirable behavior** that may cause difficulties with careers or neighbors.
- The **availability and attitudes** of family, friends, and their **ability** to help the elderly patients.

## □ Scope of the problem

- In US in the 2005, 35 million people were 65 age group, this figure will double to approximately 70 million by 2030 and will reach 82 million by 2050.
- The most rapidly growing segment of the population is the age group of 85 years and older, with the highest morbidity and the highest rate of psychiatric and medical co-morbidities.

## ➤ **A complete psychiatric history:**

- ❑ Identification, C/C, HPI, PPHx, PMHx, FHx
- ❑ A review of medication – currently/ recent used.
- ❑ Personal HX: Marital status, work, current living circumstances.

## ➤ MSE

- General Description or general appearance
- Functional Assessment
- Mood, feelings
- Affect
- Perceptual Disturbances
- Language output
- Visuospatial Functioning

- Thought
- Sensorium and Cognition
- Consciousness
- Orientation
- Memory
- Intellectual Tasks, Information, and Intelligence
- Reading and Writing
- Judgment

## ❑ General Description

- Appearance
- Psychomotor activity
- Attitude toward the examiner and Speech activity.

### ■ **Motor disturbances:-**

- Shuffling gait or Stooped posture
- Pill-rolling movements of the fingers
- Tremors and body asymmetry- should be noted
- Involuntary movements of mouth or the tongue may be side effects of medication.
- A masklike faces occurs in **parkinson's** disease.

- **The patient's speech may be:-**
  - Pressured (agitated) .....Manic.
  - Anxious states
  - The presence of a **hearing aid** indicates that the patient has a hearing problem, such as requesting the repetition of questions, should be noted.

- **The patient's attitude toward the examiner:**
  - ✓ Cooperative, Suspicious
  - ✓ Guarded – can give clues about possible transference reactions.
  - Elderly patients can react to younger physicians as if the physicians were parent figures, in spite of the age difference, because of **transference distortions**.

## ❑ **Functional assessment**

- Elderly patients should be evaluated for the capacity to maintain independence and to perform the activities of daily life.
- **Those activities include:**
  - ✓ Toileting, preparing meals,
  - ✓ Dressing, grooming and eating.
- The degree of **functional competence** in their everyday behaviors is an important consideration in formulating a plan of treatment for elderly patients.

## ❑ MOOD, FEELINGS, AND AFFECTS

- **Suicide** is a leading cause of death in the elderly, and an evaluation of the patient's **suicidal ideation is essential.**
- Feelings of loneliness, worthlessness, helplessness, and hopelessness are symptoms of **depression.**
- Loneliness is the most common reason cited by elderly persons who consider **suicide.**

- Nearly 75% of all suicide victims suffer from depression or alcohol abuse or both.
- Specifically ask the patients about any thoughts of suicide:
  - ✓ whether the patient feels life is no longer worth living
  - ✓ whether one is better off dead or, when dead, is no longer a burden to others.

- **Such thoughts-** especially associated with:
  - ✓ alcohol abuse
  - ✓ living alone
  - ✓ recent death of the spouse
  - ✓ physical illness and somatic pain- suggests a high suicidal risk.

## ■ Disturbances in mood states

- Most **depression and anxiety** may interfere with memory functioning.
- An expansive or euphoric mood may indicate a manic episode or may be part of a dementing disorder.
- The patients **affect** may be flat, blunted, constricted, shallow, or inappropriate, which can indicate a **depressive disorder, schizophrenia, or brain dysfunction**
- Dominant lobe dysfunction causes **dysprosody** (loss of normal speech) an inability to express emotions through speech intonation.

## ❑ Perceptual Disturbances

- **Hallucinations and illusions** in the elderly may be transitory phenomena resulting from decreased sensory acuity.
- **Note:** whether the patient is confused about time or place during the hallucinatory episode.
- ✓ **Confusion** indicates an **organic condition**.
- **Disordered perceptions** of the body are particularly important to ask about in the elderly.

- Since **hallucinations** may be caused by brain tumors and other **focal pathology**, a diagnostic work up may indicated.
- **Brain diseases** cause perceptive impairments.
  - **Agnosia** –(inability to recognize and interpret the significance of sensory impressions) is associated with **organic brain diseases**.
- Type of agnosia:-
  - **Anosognosia** - denial of illness
  - **Autopagnosia** - denial of a body part
  - **Visual agnosia** - inability to recognize objects
  - **Prosopagnosia** - inability to recognize faces

## ❑ Lesion of frontal lobe:

- ✚ **Motor abnormality:** spastic paralysis(the person affected with spasm paralysis) , motor speech disturbance, release of frontal reflex e.g. incontinence
- ✚ **Cognitive and intellectual changes:** memory defects-dementia, disturbance of abstract thinking, easily distractible.

☞ **Impairment or lack of initiative and**

✓ Spontaneity – abulia (loss of will power),

✓ Akinetic mutism (complete or partial loss of movements).

☞ **Personality changes:** disinhibition, witzelsucht (self amusement or enjoyment from making poor jokes and telling pointless stories).

☞ **Epilepsy:** GTCS(GM),CPS(complex partial seizure).

## ❑ Lesion of parietal lobe:

- ☞ **Astereoagnosis:** in ability to recognize the objects by touch.
- ☞ **Agraphia:** in ability to write.
- ☞ **Acalculia:** in ability to solve mathematical problems.
- ☞ **Apraxia:** in ability to perform purposeful movement in the absence of sensory or motor impairment.
- ☞ **Finger agnosia:** in ability to recognize the objects by finger touch.

## ❑ Lesion of temporal lobe:

☞ **Auditory agnosia:** inability to recognize sound, words or music.

☞ **Aphasia:** inability to express:

- ✓ The thoughts by speech, and
- ✓ Inability to writing and signs.

☞ **Perceptual disturbances:**

- ✓ Hallucinations and illusions—auditory.

- 👉 **Personality changes:** apathy (indifference ,lack of feeling or emotion), placidity (calm) ,aggressive behavior, sexual disinhibition.
- 👉 **Epilepsy:** GTCS(GM), CPS(complex partial seizure).

## ❑ Lesion of occipital lobe:

☞ **Alexia:** inability to read or word blindness.

☞ **Cortical blindness.**

☞ **Perceptual disturbance:** hallucinations and  
illusions- visual

☞ **Inability to name colors.**

## ■ **Language output:**

- **Aphasias:** disorders of language output related to organic lesions of the brain.

## ■ **The best described are:**

- Non-fluent or **Broca's aphasia**
- Fluent or **Wernicke's aphasia**
- **Global aphasia-** a combination of fluent and non-fluent aphasia.

- **Broca's aphasia:** is characterized by a non-fluent output, mostly intact comprehension /understanding, and poor repetition.
- ✓ **Reading understanding:** is largely preserved, and reading aloud has the same non fluent characteristics as spoken language.
- ✓ Naming and writing are impaired.

## ❑ Visuospatial Functioning

- **Decline visuospatial** capability is normal with aging.
- Asking a patient to **copy figures or a drawing** may be helpful in assessing the function.
- A neuropsychological assessment should be performed when visuospatial functioning is obviously impaired.

## ■ Thought

### ✚ Thought disturbances in thinking include:

- Neologisms
- Word salad: the speaking of meaningless words
- Circumstantiality
- Tangentiality
- Loosing of associations
- Flight of ideas
- Clang associations, Blocking

- The loss of ability to understand the meaning of **abstract thinking** may be an **early sign of dementia**.
- **Thinking:** is described as concrete or real or accurate.
- **Thought content:** should be examined for phobias, obsessions, compulsions, and somatic preoccupation.

- Ideas about suicide or homicide should be discussed.
- The examiner should determine if delusions are present and how such delusions affect the patient's life.
- Delusions may be present in nursing home patients and may be a reason for admission.

## ❖ **Sensorium and Cognition:**

- Sensorium concerns the functioning of the **special senses**.
- Cognition concerns **information processing** and **intellect**.
- The survey of both areas is known as the **neuropsychiatric examination** and consists of the assessment done by the clinician.

## ❖ Judgment:

- It is the capacity to act appropriately in various situations:
- Does the patient show impaired judgment?
- What would the patient do if a stamped/marked, preserved, addressed envelope was found in the street?
- What would the patient do if smoke was smelled in a theater?

- What is the difference between a dwarf and a boy?
- Why are persons required to get a marriage license?

### ❖ Neuropsychological Evaluation:

- ❖ The most widely used to test current cognitive functioning is mini-mental state examination (MMSE) which assesses:-
  - ✓ Orientation

- Attention and concentration
- Calculation
- Immediate and short-term recall (memory)
- Language and the ability to follow **simple commands.**

- **The MMSE is used to detect:**
  - ❖ Cognitive impairments
  - ❖ The course of an illness
  - ❖ Monitor the patients treatment responses.
- It is **not used to make a formal diagnosis**
- The **maximal MMSE score is 30**
- **Age and educational level** influence cognitive performance as measured by the MMSE.

## ❖ Medical History

- Elderly patients are susceptible to the adverse behavioral and cognitive effects of drugs.
- The most commonly used class of psychoactive drugs among the elderly are- **the benzodiazepines**-which can causes:
  - ✓ Sedation,
  - ✓ behavioral disinhibition,
  - ✓ depression, and
  - ✓ memory impairment as side effects.

- Benzodiazepine discontinuation can cause **insomnia and anxiety**.
- Many **antidepressant** drugs cause **nervousness and insomnia**.
- Medications used to treat **cardiovascular, pulmonary, and endocrine disorders** are known to cause **psychiatric side effects**.
- During Hx taking it is essential to know list of all current medication used by the patient.

- Careful review of medications and even substances recently discontinued is extremely important.
- Some drugs may induce **depression-**  
e.g., antihypertensive medications
- **Cognitive impairment** – e.g., sedative
- Delirium – e.g., anticholinergics
- Seizures- e.g., Neuroleptics

## ❑ **Early detection and prevention strategies**

- Many age-related illnesses develop insidiously and gradually progress over the years.
- The most common cause of **late-life cognitive impairment** is- **Alzheimer's disease(AD)**, characterized by accumulation of **neuritic plaques** and **neurofibrillary tangles** in the brain.

➤ **The most common **mental disorders** of old age:**

- ✓ Depressive disorders
- ✓ Cognitive disorders
- ✓ Alcohol use disorders.
- ✓ A high risk for suicide and drug-induced psychiatric symptoms.
- ✓ Many mental disorders of old age can be prevented, ameliorated, or even reversed.

- **Cognitive decline** is begins with mild memory loss and ends with severe cognitive and behavioral deterioration.
- The **reversible** causes of delirium and dementia; if not diagnosed accurately and treated accordingly, it can progress to an **irreversible** state requiring a patient's institutionalization.

## ➤ **Top ten chronic conditions for persons 65 years of age and older**

- ✓ Arthritis
- ✓ Hypertension
- ✓ Hearing impairment
- ✓ Heart disease
- ✓ Cataracts
- ✓ Deformity or orthopedic impairment
- ✓ Chronic sinusitis
- ✓ Diabetes
- ✓ Tinnitus
- ✓ Visual impairment

## ➤ **Psychosocial risk** factors that can predispose older persons to mental disorders:

- ✓ Loss of social roles
- ✓ Loss of autonomy
- ✓ The deaths of friends and relatives
- ✓ Declining of health
- ✓ Increased social isolation
- ✓ Financial constraints and decreased cognitive functioning.

➤ **Many drugs can cause psychiatric symptoms in older adults;**

- Result from age-related alterations in drug absorption.
- A prescribed dosage that is too large.
- Not following instructions and taking too large dose
- Sensitivity to medication.

# Dementing Disorders:

- **Arthritis:** is a common cause of disability among adults age 65 and older than dementia.
- Generally **progressive and irreversible impairment** of the intellect is increased with age.
- About 5% of persons in the USA older than age 65 have severe dementia, 15% have mild dementia.

- Of persons older than age 80, about 20% have severe dementia

❖ **Risk factors for dementia:**

- Age, Family history, Female sex, etc.

□ **Dementia involve:**

- Cognitive, Memory, and Language
- Visuospatial(visual)functions

## ❑ **Behavioral disturbances:**

- Agitation, Restlessness
- Wandering(moving), Rage(violent anger)
- Violence
- Shouting
- Social and sexual disinhibition
- Impulsiveness
- Sleep disturbances
- **Delusions:**
  - Delusions and hallucinations occur during the course of dementias are nearly in **75% of patients.**

## ➤ **Conditions that contributed to cognitive impairments;**

- ✓ Brain injuries
- ✓ Cerebral tumors
- ✓ Acquired immune deficiency syndrome (AIDS)
- ✓ Alcohol
- ✓ Medications
- ✓ Infections
- ✓ Chronic pulmonary diseases
- ✓ Inflammatory diseases

➤ **Treatable conditions include systemic disorders:**

✓ Heart disease

✓ Renal disease

✓ Congestive heart failure

➤ **Endocrine disorders:**

✓ Hypothyroidism, Vitamin deficiency

✓ Medication misuse

➤ Primary mental disorders notably depressive disorders.

## ❖ **Common Disorders of the elders:**

### ❑ **Dementia**

- Depending on the site of the cerebral lesion dementias are classified as:

### ❖ **Cortical and sub cortical:**

**A. Sub cortical dementias occurs in:**

- **Huntington's disease:** it is a hereditary disease marked by degeneration of brain cell causing chorea and progressive dementia.

- **Parkinson's disease-** a chronic diseases of the nerves system characterized by tremors, muscular weakness and rigidity and a peculiar gait.
- Multi-infract dementia
- Normal pressure hydrocephalus
- Vascular dementia and
- Wilson's disease - inborn defect copper metabolism

## ❖ Subcortical dementias are associated with:

### ■ Movement disorders:

- **Gait apraxia:** in ability to perform purposeful movement in the **absence** of sensory or motor **impairment**.
- Psychomotor retardation.
- **Apathy:** Apathy is the absence or lack of feeling, emotion, interest, concern, or motivation
- **Akinetic mutism** which can be **confused** with **catatonia** (loss or impairment of the power of voluntary movement).

## **B. Cortical dementias can occur in:**

- Alzheimer's type
  - Creutzfeldt-Jakob disease (CJD), and
  - Pick's disease which frequently manifested by aphasia, agnosia and apraxia.
- 
- ✓ **Aphasia:** inability to understand or produce of speech as a result of brain damage.
  - ✓ **Agnosia:** inability to object recognition.
  - ✓ **Apraxia:** inability to perform particular activity or loss of previous motor skill.

## ❑ Depressive Disorders

- **Depressive symptoms** are about 15% of all older adult community residents and nursing home patients
- Age itself not a risk factor for the development of depression, rather
  - ✓ Being widowed
  - ✓ Having a chronic medical illness are associated to depressive disorders.

➤ **Common signs and symptoms of depressive disorders:**

- ✓ Reduced energy and concentration
- ✓ Sleep problems (especially early morning waking and multiple awakenings)
- ✓ Decreased appetite
- ✓ Weight loss and somatic complaints.
- ✓ The **presenting symptoms** in older depressed patients emphasis on somatic complaints.

➤ Older persons are particularly vulnerable to **major depressive episodes** with **melancholic** features, characterized by:

✓ Depression,

✓ hypochondriasis

➤ low self esteem

➤ feelings of worthlessness

➤ self accusatory trends (especially about sex and sinfulness) with paranoid and suicidal ideation.

## ▪ **Risk factors for Late life depression:**

- Divorced or widowed marital status
- Low educational level
- Poor health status
- Functional impairment
- Stressful **life events** and poor social network

## ➤ Geriatric Depression scale

- 15 questions to be asked to rule out depressive disorders in older adults.
  - Each answer counts **one point**; score greater than 5 indicates **probable depression**.
1. Are you basically satisfied with your life? Yes/No
  2. Have you dropped many of your activities and interest? Yes/No
  3. Do you feel that your life is empty? Yes/No

4. Do you often get bored? Yes/No
5. Are you in good spirits most of the time? Yes/No
6. Are you afraid that something bad is going to happen to you? Yes /No
7. Do you feel happy most of the time? Yes/No
8. Do you often feel helpless? Yes/No
9. Do you prefer to stay at home, rather than going out and doing new things? Yes/No
10. Dou you feel you have more problems with memory than most? Yes/No

11. Do you think it is wonderful to be alive now?

Yes/No

12. Do you feel pretty worthless the way you are now?

Yes/No

13. Do you feel full of energy? Yes/No

14. Do you feel that your situation is hopeless? Yes/No

15. Do you think that most people are better off than you are? Yes/No

➤ **Cognitive impairment** in depressed older adult patients is referred to as the **dementia syndrome of depression (pseudodementia)**, which can be confused easily with true dementia.

- **In true dementia-** intellectual performance is usually global (inclusive).
- ✓ Impairment is consistently poor.
- **In pseudo-dementia-** deficits in **attention** and concentration are inconsistence.
- ✓ Pseudo-dementia occurs in about 15% of depressed older patients.
- ✓ 25-50% of patients with dementia are depressed.

## ❑ **Bipolar I Disorder**

- The **signs and symptoms of mania** in the elderly are similar to those in younger adults:
  - ✓ An elevated mood
  - ✓ Expansive or irritable mood
  - ✓ A decreased need to sleep
  - ✓ Distractibility
  - ✓ Impulsivity and excessive alcohol intake

- ✓ Hostile or paranoid behavior is usually present
- ✓ **The presence of cognitive impairment**
- ✓ Disorientation or fluctuating levels of awareness should make the suspiciousness of an organic cause.
- **Lithium-** remains the treatment of choice for mania.
  - Its use by elderly patients must be **carefully monitored**, because of reduced renal clearance makes lithium toxicity significant risk.
  - **Neurotoxic effects** are common in the elderly than in younger adults.

## ❑ Schizophrenia

- Usually begins in late adolescence or young adulthood and persists throughout life.
- First episodes diagnosed after age 65 are rare,
- a later-onset type beginning after age 45 has been described.
- Women are more likely to have a late onset of schizophrenia than men.

- Difference between early-onset and late-onset schizophrenia is the greater prevalence of **paranoid** type in the late-onset.
- About **20%** of persons with schizophrenia show no active symptoms.
- By age 65, 80% show varying degrees of impairment.
- The **residual** type of schizophrenia occurs in about **30% of persons**.

## ➤ Signs and symptoms of schizophrenia:

- ✓ Emotional blunting
- ✓ Social withdrawal
- ✓ Illogical thinking
- ✓ Delusions and hallucinations are uncommon.
- ✓ Because most persons with residual schizophrenia cannot care for themselves, long-term hospitalization is required.

- Older persons with schizophrenic symptoms respond well to antipsychotic drugs.
- Medication must be administered judiciously, and lower than usual dosages are effective for older adults.

## ❑ Delusional Disorder

- The age of onset of delusional disorder is usually between **ages 40 & 55**, but it can occur at any time during the geriatric period.
- Delusions can take many forms, the most common is **persecutory**- patients believe that they are:
  - ✓ Being spied on
  - ✓ Followed
  - ✓ Poisoned or harassed.

- Persons with delusional disorder may become **violent** toward their supposed persecutors.
- Some persons lock themselves in their rooms and live reclusive lives.
- **Somatic delusions-** in which persons believe they have a fatal illness.

➤ Delusional disorder can occur under **physical or psychological stress** in vulnerable persons which can be precipitated by:

- ✓ Death of a spouse
- ✓ Loss of a job
- ✓ Retirement
- ✓ Social isolation
- ✓ Adverse financial circumstances
- ✓ Debilitating medical illness or surgery
- ✓ Visual impairment and deafness

➤ **Delusions can accompany by other disorders- such as:**

- ✓ Dementia of the Alzheimer's type
- ✓ Alcohol use disorders
- ✓ Schizophrenia
- ✓ Depressive disorders
- ✓ Bipolar I disorder- which need to be ruled out.

- **Delusional syndromes** can result from prescribed medications or early signs of a **brain tumor**.
- The **prognosis** is fair to good in most cases; best results are achieved through a combination of **psychotherapy and pharmacotherapy**.
- A late-onset delusional disorder is called **paraphrenia** characterized by **persecutory delusions**.
- It develops over several years and is not associated with dementia.
- Patients with a family history of schizophrenia show an increased rate of paraphrenia.

# ❑ Anxiety Disorders

- ❖ Panic disorder
- ❖ Phobias
- ❖ Obsessive compulsive disorder (OCD)
- ❖ Generalized anxiety disorder (GAD)
- ❖ Acute stress disorder
- ❖ Post traumatic stress disorder (PTSD).

- The prevalence of **anxiety disorders** in persons age 65 and older was 5.5%.
- The most common disorders are **phobias** 4-8%.
- The rate for panic disorder is 1%.
- Anxiety disorders begin in early or middle adulthood, but can appear after age 60.
- An initial onset of panic disorder in older persons is rare, but it can occur.

## ❑ Somatoform Disorders

- Characterized by physical symptoms resembling **medical disease**.
- Somatic complaints are common among the aged people.
- More than 80% of persons over 65 years of age have at least **one chronic disease**- usually arthritis or cardiovascular problems.
- After the age of 75 year 20% have **diabetes** and an average of four diagnosable chronic illness that require medical attention.

- **Hypochondriasis** is common in patients over 60 years of age, although the peak incidence is in those 40-50 years of age.
- The disorder usually is chronic.
- Repeated physical examinations are useful in reassuring patients that they do not have a fatal illness.
- **Invasive and high risk diagnostic procedures** should be avoided unless medically indicated.
- The clinician should acknowledge that the complaint is real, the **pain** is really there and as perceived the patient.
- A pharmacological or psychological approach to the problem is indicated.

## ❑ Substance-Related Disorders

- Aged patients with **alcohol dependence** usually give a history of excessive drinking that began in young or middle adulthood.
- They are usually medically ill, primarily **with liver disease**, and are either divorced, widowed, or are men who never married.
- Many have arrest records and are numbered among the homeless persons.

- Overall alcohol and other substance use disorders account for 10% of all emotional problems in the aged group.
- Substance-seeking behavior characterized by crime, manipulativeness, and antisocial behavior is **rare** in older than in younger adults.
- Elderly patients may **abuse anxiolytics** to allay chronic anxiety or to ensure sleep.
- The maintenance of the chronically ill **cancer** patient with narcotics prescription by a physician produces dependence.

- But the need to provide pain relief takes precedence over the possibility of narcotic dependence and is entirely justified
- The clinical presentation of older patients with **alcohol and other substance use disorders** varies:
  - ✓ Confusion
  - ✓ Poor personal hygiene
  - ✓ Depression
  - ✓ Malnutrition and the effects of exposure and falls.

- The **sudden onset of delirium** in older persons **hospitalized for medical illness** is most often caused by alcohol withdrawal.
- Older persons may **abuse** over the counter substances, including **nicotine** and **caffeine**.
- Over the-counter **analgesics are used by 35%** of older persons and **30% use laxatives**.
- **Unexplained** GI problems, psychological, and medical problems should aware clinicians to over the-counter **substance abuse**.

## ❑ Sleep Disorders

- **Advanced age** is the most important factor associated with increased prevalence of sleep disorders.
- Sleep-related phenomena reported frequently by older than younger adults :-
  - ✓ daytime sleepiness
  - ✓ daytime napping
  - ✓ the use of hypnotic drugs.
- Clinically older persons experience higher rates of **breathing-related sleep disorder** and **medication-induced movement disorders** than younger adults.

## ➤ **The causes of sleep disturbances in older persons :**

- ✓ Primary sleep disorders
- ✓ Mental disorders
- ✓ General medical disorders (GMC)
- ✓ Social and environmental factors

## ➤ Conditions that commonly interfere with sleep in older adults:

- ✓ **Pain, nocturia, dyspnea, heartburn.**
- ✓ The **lack** of daily structure and of **social** or **occupational** responsibilities contributes to poor sleep.
- Many older persons use **alcohol, hypnotics, and other CNS depressants** to help them fall asleep.
- Changes in sleep structure among persons over 65 years of age involve both REM sleep and non-rapid eye movements(NREM).

## ❖ Sleep is made up of two physiological states:

1. Non-rapid eye movement (NREM) sleep and
2. Rapid eye movement (REM) sleep.

❖ **NREM:** sleep is the **deepest portions of sleep** characterized by **physiological functions** are markedly lower.

❖ **NREM:** **Four** Non-REM (NREM) stages (1, 2, 3, & 4)

- Stage 1 – transitional sleep: lightest **stage**
  - ✓ Duration few minutes
- Stage 2 – slightly **deeper**
  - ✓ Duration 5-15 minutes
- Stage 3- No eye or body movements
- Stage 4 – **deepest** stage
  - Duration 20-40 minutes

✦ **REM:** sleep is **physiological activity levels are similar to those in wakefulness** characterized by a high level of brain activity (physiological activity).

✓ Changes in sleep structure among persons **over 65yrs** of age involve **both REM sleep** and (NREM).

❖ **The REM changes include:**

➤ The **redistribution** of REM sleep throughout the night.

➤ More REM **episodes**.

## ❖ The NREM changes:

- Decreased amplitude of delta waves.
- A lower percentages of stages 3 and 4 sleep, and a higher percentage of stages 1 and 2 sleep.
- Older persons experience increased awakening after sleep onset.

## ❑ Suicide Risk

- Elderly persons have a **higher risk for suicide** than any other population
- The suicide for white men over the age of 65 is five times higher than that of the general population.
- One third of elderly persons reported loneliness as the principal reason for considering suicide.

- Approximately **10%** of elderly individuals with **suicidal ideation** suffering from:
  - ✓ financial problems
  - ✓ poor medical health
  - ✓ **depression** as reasons for suicidal thoughts.
  - ✓ **Suicide victims** differ demographically from individuals who attempt suicide.
  - ✓ About 60% of those who **commit suicide** are men.
  - ✓ 75% of those who **attempt suicide** are women.

## ➤ **Methods of suicides:**

- ✓ Use of guns
- ✓ hanging oneself
- ✓ drug over dose 70%
- ✓ cut or slash themselves 20%,
- ✓ elderly persons who commit suicide have a psychiatric disorder- commonly **depression**.
- ✓ Psychiatric disorders of suicide victims, do not receive medication or psychiatric attention.

➤ **Mostly elders with suicide victims are:**

- ✓ widowed
- ✓ single
- ✓ separated
- ✓ divorced.

➤ **Violent or aggression** methods of suicide are more common in the elderly.

➤ The most common **precipitants of suicide** in older individuals include:

- ✓ physical illness , loss of loved once
- ✓ problems with employment
- ✓ financial restrict and family relationships.

- Most elderly persons who **commit suicide** communicate their suicidal thoughts to family or friends before the act of suicide.

## ❖ Other conditions of old Age

### ❑ Vertigo:

- ✓ Feelings of vertigo or dizziness- is a common complaint of older adults to become inactive because they fear falling.

## ■ Causes of vertigo:

- Anemia
- Hypotension
- Cardiac arrhythmia
- Cerebrovascular disease
- Basilar artery insufficiency (specially in the skull)
- Middle ear disease.

- Most of the causes have a strong psychological component, so that any **secondary** increasing symptom should discover.
- The over use of **anxiolytics** can **cause dizziness and daytime somnolence**.

## ❑ Syncope

- The sudden loss of consciousness associated with syncope results from a reduction of cerebral blood flow and **brain hypoxia**.
- A detailed medical workup is required to rule out the various causes of syncope.

## ■ Causes of syncope:

- ☞ Cardiac Disorders
- ☞ Situational Hypotension
- ☞ Abnormal Cardiovascular reflexes(response)
- ☞ Drugs
- ☞ CNS abnormalities
- ☞ Metabolic Abnormalities
- ☞ Pulmonary Disorders

## □Hearing Loss

- About 30% of persons over age 65% have significant hearing loss (**presbycusis**).
- After age of 75 years, the figure rises to 50%.
- Most elderly persons with hearing loss can be treated with hearing aids.

## ❑ Elder Abuse

- An estimated 10% of persons above age 65 years of age are abused.
- Elder abuse is defined by the American Medical Association as “an act or omission (exclusion) which results in harm or threatened harm to the health or welfare of an elderly persons.”

- **Mistreatment includes abuse and neglect:**

- Physically

- Psychologically

- Financially

- Materially

- Sexual abuse does occur

■ Acts of **omission** include:

- Withholding food
- Medicine
- Clothing and other necessities
- Family conflicts and problems often underline elder abuse.
- The victims tend to be very old and weak.
- They often live with their assailants or attacker, **who may be financially dependent on the victims.**

- Both the victim and behind the person or the victim or victims family tend to deny or minimize the presence of abuse.

## **Interventions:**

- Providing legal services
- ✓ Housing
- ✓ Medical services
- ✓ Psychiatric
- ✓ Social services

## ❑ Spousal Bereavement:

- Demographic data suggests that **51% of women** and **14% of men** over the **age of 65 yrs** will be widowed.
- **Spousal loss**: is among the most stressful of all life experiences.
- **Depressive symptoms** peak within the first few months after a death, but decline significantly within a year.
- Elderly **survivors** of spouses who committed suicide are especially at risk, as are those with **psychiatric illness**.

# ❑ Psychopharmacological treatment of geriatric d/os.

## Principles:

- The treatment of psychiatric disorders in the elderly is similar with younger adults, but there are some differences.
- ✓ Treatment at home is usually preferable to treatment at hospital.
- ✓ Caution in drug dosages.
- ✓ Social measures are important.
- ✓ There is a need to involve and support families.

- Major **goals** of the pharmacological treatment of the elderly:
  - ✓ To improve the quality of life
  - ✓ Maintain them in the community
  - ✓ Delay or avoid their placement in nursing homes.

- Alterations of the drug dosages are required because of the physiological changes that occur as the person ages:
- ✓ **Renal disease** is associated with decreased renal clearance of drugs
- ✓ **Liver disease** results in a decreased ability to metabolize drugs
- ✓ **Cardiovascular disease** and reduced cardiac output can affect both renal and hepatic drug clearance.
- ✓ **Gastrointestinal disease** decreased gastric acid secretion influence drug absorption.

- ✓ The increased risk of OSH in the elderly from psychotropic drug is related to **reduced functioning of-blood pressure regulating mechanism.**
- ✓ As a rule, the lowest possible dosage should be used to achieve the desired therapeutic response.

### ❖ **Antidepressant**

- All of these drugs are equally effective in treating depression.
- Elderly patients are more susceptible to some antidepressant side effects than younger adults.

- TCA can cause orthostatic and sedative side effects especially when used by elderly patients.
- In general, the SSRIs –such as fluoxetine (Prozac) and paroxetine (**Paxil**)- are safe and well tolerated by elderly patients.
- Those drugs may cause nausea and other GI symptoms- **nervousness, agitation, headache, and insomnia.**
- Fluoxetine is the most likely to cause nervousness, insomnia, and loss of appetite particularly early in treatment.

- **Sertraline (Zoloft)** is the drug most likely to produce nausea and diarrhea.
- **Paroxetine** causes some anticholinergic effects.
- The SSRIs do not cause the characteristic side effects tricyclic agents.
- **The absence of OSH is a clinically significant factor in the use of SSRIs by the elderly.**

## ❖ **Psycho stimulants: such as**

- Methylphenidate (Ritalin)

- Amphetamine e.g., - dextroamphetamine

- ✓ **Are used in the treatment of ADHD.**

- Can improve mood, apathy, and anhedonia of the depressed elderly patient, especially when associated with chronic medical illness- such as rheumatoid arthritis or multiple sclerosis.

- ✓ **Amphetamine may augment analgesia in patients who require pain medication.**

- The use of **psychostimulants** is controversial because of the risk of abuse, but when prescribed judiciously in small dosages, they are value.

## ❖ Antipsychotics:

- In general **psychosis** in the elderly responds to lower dosages antipsychotics.
- The elderly are sensitive to the side effects of medications- **extrapyramidal side effects**.
- No consensus exists regarding the choice or the dosages level of antipsychotics for the elderly.
- No need to administer prophylactic **antiparkinsonian** agents on a regular basis when prescribing antipsychotics.
- The anticholinergic aspect of those drugs can cause unwanted side effects, especially **memory impairment**.

## ❖ Multiple Pathology:

- Cataracts, deafness, degenerative joint diseases, like osteoarthritis or osteoporosis, varicose veins are all conditions which are likely to develop slowly and to progress.
- Cancer, pernicious anemia (the destructive of RBC), thyrotoxicosis, myxoedema (hypofunction of thyroid gland).

- Are common due to deterioration of immune mechanisms.
- Obesity, diabetes, depression and dementia frequently see.

## ➤ Barriers to Obtaining Proper History:

- Mental confusion, deafness
- Concentration, lack of co-operation
- Idiosyncrasies (an abnormal **susceptibility** to any action e.g. **to a drug**, a food/malnourished or other substance use are **barriers to obtaining proper history** ).

## ➤ **Neuro-psychiatric disorders:**

- Cerebrovascular Diseases
- Depressive and other Psychiatric Disorders
- Cognitive Impairment and Dementia
- Neurodegenerative Disorders
- Infections of the Central Nervous System, Sleep Disorders and Coma.

## ➤ **Laboratory Evaluation and Other Investigations:**

### ❖ **Routine Haematological Tests -**

- ✓ Complete Blood cell count
- ✓ Platelets count
- ✓ Prothrombin time
- ✓ Serum Electrolytes
- ✓ Blood glucose level.
- ✓ Renal Panel
- ✓ Hepatic Panel

## ❖ Routine Diagnostic Tests -

- Lipid Profile, Blood sugar fasting, Electrocardiogram, Chest radiograph.

❖ Optional – EEG, CT Scan, MRI

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## ❖ Facilities for an inpatients Geriatric Mental Health Care

- Entrance with ramp and wheel chair
- Adequate OPD space with waiting facilities
- Consultation chambers(room) for mental health team (Psychiatrists, Clinical Psychologist, Psychiatric Social worker)
- Nursing Station and Drug dispensing
- Inpatient wards with attendant facility
- Semi ICU
- Lab investigations facilities
- Recreation room
- Rehabilitation activities
- Storage and Documentation space

## ❖ **Interdisciplinary team consultation-Liaison**

- Medical internist
- Gynaecologist
- Ophthalmologist
- Orthopaedician
- Physiotherapist
- Dietician

## ❖ Age related changes in the Central Nervous System:

- ☆ Gross brain atrophy
- ☆ Ventricular enlargement
- ☆ Selective regional neuronal loss
- ☆ Remodeling of dendrite, axons & synapses
- ☆ Appearance of intra-neuronal lipo-fuscin
- ☆ Selective regional decrease in neurotransmitter & neuropeptides.

- ☆ Selective modification of neurotransmitter metabolism
- ☆ Gluco-corticoid neurotoxicity
- ☆ Changes in receptors
- ☆ Changes in neurotrophins
- ☆ Changes in signal transduction

- ☆ Impairment of calcium homeostasis
- ☆ Possible changes in cell cycle regulations (e.g. cyclins).
- ☆ Possible changes in extra cellular matrix proteins (e.g. Laminin, proteoglycans)
- ☆ Possible regional decline in cerebral blood flow
- ☆ Possible regional decline in metabolic rate
- ☆ Appearance of senile plaque & neurofibrillary tangle.

## ❖ Pharmacodynamics(effects of drug) and aging:

- Neurotransmitter pharmacodynamics changes with aging:

- Dopaminergic system

- Dopamine D<sub>2</sub> receptor in the striatum

- Cholinergic system

- Choline acetyl transferase

- Cholinergic cell numbers

➤ **Adrenergic system**

- Beta – adrenoceptor number
- Beta – receptor
- Alpha 2 – adrenoceptor responsiveness

➤ **Gabaminergic system**

- Psychomotor performance in response to benzodiazepines
- Post – synaptic receptor response to GABA.

# ❖ Pharmacokinetic(action and metabolism of drugs in the body) changes with aging

## ▪ Absorption

Increase -gastric pH  
decrease -(Delayed) gastric emptying  
decrease- Splanchnic blood flow  
decrease -Intestinal motility

## ▪ Distribution

Increase - Body Fat  
decrease -Total body water  
decrease -Albumin  
Increase - Alpha<sub>1</sub> acid glycoprotein

## ▪ Metabolism

decrease -Hepatic mass  
decrease -Hepatic blood flow  
decrease- Phase **I** Metabolism  
(unchanged) phase **II** metabolism

## ▪ Elimination

decrease -Creatinine clearance  
decrease -Glomerular filtration rate  
decrease -Tubular secretion  
decrease -Creatinine production

## ❖ Points to remember before prescribing medication in elderly

- In elderly medical complication of pharmacotherapy alone constitute a highly significant treatable health problem.
- Adverse reaction to drugs of all types is seven times higher in those aged 70 to 79 years, than in those 20 to 29 years old.
- Non compliance (refusal) with therapy is a major problem for psychiatric patients, and this dilemma is exacerbated with age.

- Age related health problems combines with physiological changes to increase the probability of adverse effect from medication which in turn increase the likelihood of non compliance.
- Complex of medication regimens are further complicated by communication difficulties arising from impaired hearing, cognitive impairment, language & cultural difficulties.

## **❑ Psychopharmacological Treatment of Geriatric Disorders**

- The psychiatrist, for an 87 year old patient suffering from heart disease, arthritis and depression must ask a number of questions to himself.

### **❑ Questions to raised;**

- ✓ What is the best treatment
  - Pharmacotherapy? Psychotherapy? E.C.T.?
- ✓ If pharmacotherapy, what is the most appropriate drug?

- ✓ Balancing the **adverse effect and efficacy**. What is the best dosage?
- ✓ How soon will the patient's symptom decrease?
- ✓ If the drug is effective. How long will the treatment last?
- ✓ If the drug is ineffective how long should the wait before changing the treatment?

## ❖ Geriatric mania:

Risk of **mania decline** in late life, on the other hand mania and hypomania **affect 5-10%** of psychiatric patients.

- ☆ Lithium salts
- ☆ Valproate
- ☆ Carbamazepine
- ☆ Calcium channel blockers
- ☆ E.C.T.

**Putative(General consideration or reputedly) Mood stabilizes:**

- ☆ L. Thyroxine
- ☆ Phosphatidyl Choline
- ☆ Progesterone

### **Newer Anticonvulsants**

- ☆ Clozapine,
- ☆ Olanzapine
- ☆ Magnesium salt

### **Newer Anticonvulsants:**

- ☆ Lamotrigine,
- ☆ Gabapentin
- ☆ Topiramate,
- ☆ Tigabine

**Omega 3 fatty acid**

## ❑ Antidepressants in old age depression:

- Increasing prevalence of depression in people aged up to 70 years is **26.95% for men & 42.5% for women**, still most of the drug trials exclude elderly subjects.
- In addition, most of the drug trials also exclude subjects with medical co morbidity. Hence the results of drug trials done in young adults can't be generalized to elderly.

## ❑ Psychotic agitation in the elderly with mania

### ❖ Initial treatment

- ☆ Haloperidol 0.25 to 0.5 mg IM or PO.
- ☆ After one hour, administer lorazepam 0.5mg IM or PO.

### ❖ Stabilization

- ☆ Repeat alternating doses every hour until calm.
- ☆ Monitor carefully to avoid over sedation.
- ☆ Alternative regimen if extra pyramidal symptoms develop.

- ☆ Atypical antipsychotic risperidone (0.5mg), or Olanzapine (2.5 - 5 mg).
- ☆ **Avoid chlorpromazine and thioridazine** due to their anticholinergic and hypotensive side effects.
- ❖ **Chronic medication**
- ☆ Daily dose of medication is determined by adding the total dose of each medication required to calm the patient and dividing it equally throughout the day.

## ❑ Adjunctive antipsychotic medication:

### ▪ Risperidone

☆ Daily divided doses of .5 to 3mg

☆ Monitor patient carefully for orthostatic hypotension and EPS as dose is increased.

### ▪ Olanzapine

☆ Daily doses of 2.5 to 10 mg /day'

☆ Transient elevation in liver enzyme have been reported Risperidone plus Olanzapine.

☆ Observe for increased agitation or other manic symptom because of breakthrough or came through mania **with risperidone.**

■ **Clozapine**

☆ Kept for patients who are **intolerant** of risperidone and Olanzapine.

☆ Daily doses start **at 12.5mg**, increase to **50mg**

☆ If history of **seizure** disorder should be **maintained** on an **anticonvulsant.**

☆ Monitor for orthostatic hypotension and weekly complete blood count to assess for evidence of bone marrow toxicity.

# ATYPICAL ANTIPSYCHOTICS IN THE ELDERLY

| Drug        | Metabolite                                                   | t <sub>1/2</sub> (h) | CLR and T <sub>1/2</sub> changes in elderly | CYP enzyme involved in metabolism (potential drug interactions) | Geriatric doses mg per day |
|-------------|--------------------------------------------------------------|----------------------|---------------------------------------------|-----------------------------------------------------------------|----------------------------|
| Clozapine   | Norclozapine, clozapine N-oxide (very limited activity)      | 4-12                 | CLR decreased                               | CYP1A2, CYP2D6, CYP3A4 (theophylline, digoxin, warfarin)        | 50                         |
| Risperidone | 9 hydroxy risperidone (active)                               | 20                   | CLR decreased<br>t <sub>1/2</sub> prolonged | CYP2D6 (inhibitor drugs such as quinidine)                      | 2                          |
| Olanzapine  | 10-N-glucoranide, N-demethyl-olanzapine (inactive)           | 30                   | CLR decreased<br>t <sub>1/2</sub> prolonged | CYP2D6 (inhibitor drugs such as quinidine)                      | 10                         |
| Quetiapine  | Multiple (main metabolite is a sulphoxide, usually inactive) | 6'                   | CLR decreased<br>t <sub>1/2</sub> prolonged | CYP3A4 (phenytoin, Thioridazine)                                | 200                        |

# ❑ Common antipsychotic drug interaction in the elderly

## ❖ Combination

- **TCAs** and **conventional** antipsychotics
- **SSRIs** and **Clozapine**
- Risperidone **and** Clozapine
- Smoking
- Cimetidine
- Anticholinergic drugs
- Anticonvulsant, antihypertensive and sedative drugs

## ❖ Effect

- Raises blood **antidepressant** concentrations
- Raises blood Clozapine concentrations
- Raises blood Clozapine concentration
- Lower blood antipsychotic concentration
- Lower blood antipsychotic concentration
- Additive memory and delirious effects
- Additive sedative and delirious effects

## ❑ Expert consensus guidelines:

- ❖ Special issue in using antipsychotics;
- ✓ Formulatory or ideas decision should be **based on cost** when drug of comparable or equivalent **efficacy** are available.
- ✓ It is especially important to consider safety and tolerability along with efficacy and cost.

- ✓ Avoid low and mid-potency conventional antipsychotics as well as Clozapine & ziprasidone in elderly patients.
- ✓ **Disease drug interaction:**
  - Avoid high dose of risperidone in patients with Parkinson's disease Clozapine and Olanzapine in patients who **have** diabetes mellitus, and **dyslipidaemias** or obesity.

- **Avoid** ziprasidone, low and mid potency conventional antipsychotics and Clozapine in patients who have **congestive heart failure**.
- Quetiapine is the first line recommendation for a patient with Parkinson's disease, also consider low dose, Olanzapine or Clozapine for patients **with Parkinson**.
- **Avoid** high dose of risperidone in patients with Parkinson's disease.

## ❑ Management of cognitive symptoms-dementia:

### ▶ Cholinesterase inhibitors-mild to moderate dementia:

-Donepezil

-Rivastigmine

Prescription only for-

- Probable Alzheimer's disease
- Duration of illness > 6months
- MMSE > 10

## **□ Three phase response evaluation:**

**1. Early (2 wk)**-assess tolerance & side effects.

**2. Late (3 month)**-assess cognition

**3. Continued (6 month)**- assess disease stat

## **□ Stop treatment if:**

- ✓ Early evaluation-poor tolerance or compliance
- ✓ Deterioration(decline) continues at pretreatment rate after 3-6 month of medication
- ✓ On maintenance doses, accelerated deterioration.

## ➤ Drugs useful for reducing the signs of dementia

| Drug         | Dose            |
|--------------|-----------------|
| Donepezil    | 5-10 mg daily   |
| Rivastigmine | 1.5-6 mg b.i.d. |
| Galantamine  | 4-12 mg b.i.d.  |
| Memantine    | 5-20 mg daily   |