Menopause - Definitions, Diagnosis
Agenda

• Define menopause
• Types of menopause
• Diagnosis of menopause
• Staging of menopause
• Initial assessment at menopause
• Classifying women to plan management
Transition In Women’s Life

- Menarche
- Pregnancy
- Menopause
Definition Of Menopause

- 12 months of amenorrhea
- Retrospective diagnosis
- Depletion of ovarian follicles
- Diminution of ovarian hormones
- No independent biological marker
- Objective sensitive marker—Irregular cycles

No need to conduct tests routinely to diagnose menopause
Diagnosis Of Menopause

- **History**
  - Symptoms

- **Signs**
  - Vaginal pH
    - Lateral vaginal smear

- **Trial of Medication**
  - Progesterone withdrawal
    - Response to HT
## Diagnosis Of Menopause

- **Laboratory Tests**

<table>
<thead>
<tr>
<th>Tests</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum FSH</td>
<td>&gt; 40 mlu/ml</td>
</tr>
<tr>
<td>Serum Estradiol</td>
<td>&lt; 20 pg/ml</td>
</tr>
<tr>
<td>AMH, Inhibin B</td>
<td>Low</td>
</tr>
<tr>
<td>US</td>
<td>&lt; Antral Follicular Count</td>
</tr>
</tbody>
</table>

Markers for diagnosis of menopause are preferably restricted for use in special situations and for fertility issues.
Definitions

- **Premenopause** - Reproductive period prior to menopause

- **Perimenopause** - 3-5 years before and one year after menopause

- **Menopause Transition** - Disturbed menstrual cycle, endocrine changes
Postmenopause And Senescence

• Postmenopause

It is the span of time dating from the final menstrual period, regardless of whether menopause was spontaneous or iatrogenic.

• Senescence

It is the period after the age of 60 years.
Premature Menopause

• Spontaneous menopause occurring two standard deviations below the mean estimated age for the reference population

• Traditionally, considered to be below the age of 40 years - we may consider it as occurring below 38 years*

* We need population-based studies to derive at the cut off values
Early And Delayed Menopause

- **Early menopause**: It is the time span between the spontaneous or iatrogenic menopause occurring between the age of 40 years and the accepted typical age of menopause for a given population.

- **Delayed menopause**: It is not defined but may be important in terms of the increased problems associated with the hyperestrogenism. It is two standard deviations above from the natural average age of menopause in a given population. We may consider it to be beyond 54 years.
Induced And Temporary Menopause

- **Induced menopause**: Cessation of menstruation that follows bilateral oophorectomy or iatrogenic ablation of ovarian function.

- **Temporary menopause**: It is a term preferably not to be used, since definition of menopause is complete cessation of menstruation. Rarely, ovarian function is interrupted for a period of time and later resumes.
Postmenopausal Bleeding

• Postmenopausal bleeding is the occurrence of vaginal bleeding following a woman’s final menstrual cycle and is not on cyclical hormone therapy.

• But, vaginal bleeding that occurs six months after amenorrhea should be considered suspicious and warrants investigation.
Age At Natural Menopause

- Estimated mean age of menopause is 46 years in India, and is lower than that of the Caucasians
Etiology Of Common Symptoms Of Midlife Women: Aging Vs Menopause

- General aging
- Midlife - society, culture, life events
- Ovarian aging: perimenopause and postmenopause
Staging Systems: IMS Consensus Group

- Both modified classification of Anklesaria’s staging & stages of reproductive aging workshop (STRAW) classifications, may be utilized for Clinical Purposes and Treatment of Menopause
# Modified Anklesaria’s IMS Consensus Group Staging

<table>
<thead>
<tr>
<th>Menopause</th>
<th>Stage I</th>
<th>Stage II A</th>
<th>Stage II B</th>
<th>Stage III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Roughly 2 years before menopause</td>
<td>1 year after last period</td>
<td>Up to 5 years after menopause</td>
<td>From 5 years postmenopausal till Late (postmenopausal) complications:</td>
</tr>
<tr>
<td>Early (Premenopausal symptoms): IA</td>
<td>Early psychosomatic symptoms</td>
<td>Atrophic changes</td>
<td>Intermediate (postmenopausal symptoms): Late psychosomatic and genital symptoms</td>
<td>Residual changes from stage II</td>
</tr>
<tr>
<td></td>
<td>Early psychosomatic symptoms</td>
<td>Genitourinary</td>
<td>Sexual disorders</td>
<td>Ischemic heart changes</td>
</tr>
<tr>
<td></td>
<td>Menstrual problems</td>
<td>Vasomotor instability</td>
<td>Residual changes from stage II A osteopenia or osteoporosis</td>
<td>Other late complications, e.g. Alzheimer’s disease, Osteoporosis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weight gain</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Osteopenia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREVENT</td>
<td>TREAT</td>
<td>TREAT</td>
<td>TREAT</td>
<td>TREAT</td>
</tr>
<tr>
<td>PALLIATE</td>
<td></td>
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</tr>
</tbody>
</table>

**Window of Opportunity**
When Is Medical Intervention Required?

- **Menopause**
  - 40 yrs
  - 50 yrs
  - 60 yrs

- **Vasomotor Symptoms**
  - Sleep Disorders
  - Mood Changes

- **Vaginal Atrophy**
  - Dyspareunia
  - Skin Atrophy

- **Menstrual Disorders**

- **Window of opportunity**

- **Osteoporosis**
- **Atherosclerosis**
- **Coronary Heart Disease**
- **Cerebrovascular Disease**
Changes At Menopause Transition

- Hot flashes
- Night sweats
- Changes in periods
- Weight gain
- Problems with bladder
- Vaginal dryness
- Loss of interest in sex
- Mood changes
- Sleep disturbances
- Forgetfulness/Headache/Backache
- Loss of hair on head/new hair on chin
- Muscle and joint pains
Who Manages Menopause?
Menopause Clinic

• **Minimum Basic Requirement**
  - Core team - Gynecologist, Nurse, Receptionist
  - Secondary team of visiting consultants

• **Equipment**
  - Examination table with lithotomy position, Measuring tape, Weighing machine, BP Apparatus, Speculums, Pap’s smear kits, Laboratory/Collection centre

• **Stationary**
Menopause Performa

access-www.indianmenopausesociety.org-domain Clinical practice guidelines on menopause
Physician’s Role And Approach

Menopause + Aging

Symptomatic → Preventive health ← Asymptomatic
Physician’s Role

• Assessment of symptoms

• Physical Examination

• Investigation

• Management -
  Group 1- Women without menopausal symptoms
  Group 2- Women with menopausal symptoms
Physician’s Role

• Each group is sub-classified

  - Healthy with no co-morbidities, Healthy with significant risk factors,
    Healthy with latent disease, Medically compromised

• Lifestyle management

• Pharmacotherapy after risk/benefit analysis
• A young woman is a gift of nature but an old woman is a work of art
Is This Woman Pre/Peri/Postmenopausal

When was your last period?

- Less than 3 months ago: Regular Bleeding, Premenopausal
- Less than 12 months ago: Irregular Bleeding, Perimenopausal
- More than 12 months ago: Natural Menopause

Removal of both ovaries?

- Yes: Surgical menopause
# Assessment History

Full assessment required irrespective of presenting reason of midlife woman

## Medical History

<table>
<thead>
<tr>
<th>Menopausal symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gynaecological facts:</td>
</tr>
<tr>
<td>Bleeding pattern or LMP</td>
</tr>
<tr>
<td>Past surgery (eg: hysterectomy/oophorectomy)</td>
</tr>
<tr>
<td>Current use of hormonal therapy</td>
</tr>
<tr>
<td>+/- contraceptive needs</td>
</tr>
<tr>
<td>Dietary History</td>
</tr>
<tr>
<td>Sleep History</td>
</tr>
<tr>
<td>Sexual History</td>
</tr>
<tr>
<td>PMS, Postnatal depression,</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk assessment of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
</tr>
<tr>
<td>Hypertension</td>
</tr>
<tr>
<td>Deep vein thrombosis,</td>
</tr>
<tr>
<td>Thyroid dysfunction</td>
</tr>
<tr>
<td>Liver disease</td>
</tr>
<tr>
<td>Osteoporosis,</td>
</tr>
<tr>
<td>Arthritis,</td>
</tr>
<tr>
<td>Climacteric depression</td>
</tr>
<tr>
<td>Dementia</td>
</tr>
<tr>
<td>Cancers in general, breast, cervical, endometrial, ovarian</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Family History:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardio/cerebrovascular disease</td>
</tr>
<tr>
<td>Osteoporosis/fractures</td>
</tr>
<tr>
<td>Dementia</td>
</tr>
<tr>
<td>Cancer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current medication including OTC medications</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Social &amp; Personal history</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco/alcohol use</td>
</tr>
</tbody>
</table>

*For further information, please visit the Indian Menopause Society website.*
Calcium Calculator - Diet

- Quick dietary calcium assessment chart: A tool for a quick assessment of total dietary calcium intake

<table>
<thead>
<tr>
<th>Source</th>
<th>Calcium (in mg)*</th>
<th>No. Of Servings</th>
<th>Total Calcium (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dietary</td>
<td>300/1 glass milk</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>300/2 katori curds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-dietary</td>
<td>200-300</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Risk Factors – Osteoporosis

**Modifiable**
- Low BMI
- Smoking and
- More than 3 drinks of alcohol per day (Grade A)

**Non-modifiable**
- Gender
- Advancing age
- Prior fragility fracture, or
- Family history of fracture

**Environmental Factors**
- Nutrition (calcium intake using the quick dietary calculator, protein)
- Physical activity
- Sunlight exposure which are important modifiable risk factors in India
- Relevance of risk of falling increases with ageing (Grade A)
## Risk Factors – Cardiovascular Disease (CVD)

### Modifiable
- Diabetes
- Hypertension
- High LDL Cholesterol
- Low HDL Cholesterol (<35mg/dl)
- Elevated Triglycerides
- Physical Inactivity
- Cigarette smoking (current)
- Obesity
- Homocystenemia
- Lipoprotein(a),
- High risk CRP

### Non-modifiable
- Age more than 55 yrs
- Premature menopause < 40 yrs
- Family history of CHD < 65 yrs

### Additional risk factors for stroke
- Atrial fibrillation
- Asymptomatic carotid stenosis
Risk Factors – Deep Vein Thrombosis

- Personal or family history of clot, if so, when?
  - While on Prolonged immobilization/surgery/ or while pregnant or on the contraceptive pills
  - Were tests performed to confirm the history/treatment with anticoagulants for the clot?
## Risk Factors – Diabetes Mellitus

<table>
<thead>
<tr>
<th>Modifiable</th>
<th>Non-modifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Hypertension</td>
<td>• Advancing age</td>
</tr>
<tr>
<td>• Dyslipidemia</td>
<td>• Family history</td>
</tr>
<tr>
<td>• Polycystic ovary syndrome</td>
<td>• Personal history of gestational diabetes mellitus</td>
</tr>
<tr>
<td>• Physical inactivity</td>
<td>• impaired glucose tolerance</td>
</tr>
<tr>
<td>• Obesity</td>
<td>• Polycystic ovary syndrome</td>
</tr>
</tbody>
</table>
## Risk Factors – Alzheimer's Disease

### Modifiable
- Physical inactivity
- Diabetes
- Hypertension
- Dyslipidaemia
- Smoking
- Obesity
- Depression
- Stress & Social engagement
- Diet

### Non-modifiable
- Age
- Family history
- Genetic factor apolipoprotein APOE,
- Auto-immune diseases
- Head trauma
- Traumatic brain injury

Polypharmacy and thyroid disease are 2 examples of reversible causes of memory loss in older adults
## Risk Factors – Breast Cancer

<table>
<thead>
<tr>
<th><strong>Modifiable</strong></th>
<th><strong>Non-modifiable</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Age at First Child</td>
<td>• Age &amp; Gender</td>
</tr>
<tr>
<td>• Breastfeeding</td>
<td>• Benign Breast Disease</td>
</tr>
<tr>
<td>• BMI</td>
<td>• Family History</td>
</tr>
<tr>
<td>• Alcohol</td>
<td>• BRCA1 &amp; BRCA2</td>
</tr>
<tr>
<td>• Hormone Therapy?</td>
<td>• Menstrual History: Ages at Menarche and Menopause</td>
</tr>
<tr>
<td></td>
<td>• Breast Density on Mammogram</td>
</tr>
<tr>
<td></td>
<td>• Medical History of Hodgkin’s Lymphoma</td>
</tr>
</tbody>
</table>
## Risk Factors – Endometrium Cancer

<table>
<thead>
<tr>
<th>Modifiable</th>
<th>Non-modifiable</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Obesity</td>
<td>• Advancing Age</td>
</tr>
<tr>
<td>• Diabetes</td>
<td>• Endogenous Estrogens</td>
</tr>
<tr>
<td>• Hypertension</td>
<td>• Late menopause</td>
</tr>
<tr>
<td>• Polycystic Ovarian</td>
<td>• Nulliparity and Infertility</td>
</tr>
<tr>
<td>Syndrome</td>
<td>• Genetic factor</td>
</tr>
<tr>
<td>• Unopposed Estrogen Therapy</td>
<td></td>
</tr>
</tbody>
</table>
Assessment – Clinical Examination

Full assessment required irrespective of presenting reason of midlife woman

Examination

Height & Weight
Blood Pressure & CVS
Pelvic examination (+/- Pap Smear)
Breast examination
Thyroid Examination

Waist Circumference
Physical fitness
Assessment of mood and cognition
Eye check-up—intraocular pressures, refractive index, and retina
Dental check up
Assessment – Investigations

Full assessment required irrespective of presenting reason of midlife woman

<table>
<thead>
<tr>
<th>Laboratory Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete blood picture</td>
</tr>
<tr>
<td>Urine test routine</td>
</tr>
<tr>
<td>Fasting blood glucose level</td>
</tr>
<tr>
<td>Lipid profile</td>
</tr>
<tr>
<td>Serum thyroid stimulating hormone</td>
</tr>
<tr>
<td>Papanicolaou (PAP) smear</td>
</tr>
<tr>
<td>Transvaginal ultrasound</td>
</tr>
<tr>
<td>Mammogram</td>
</tr>
</tbody>
</table>

Further targeted investigations are done depending on the risks of a disease suspected on history and clinical examination
Recommendations Of DXA Scan In Indian Females

• All women 5 years beyond the age of natural menopause
• Women less than 5 years since Menopause with a particular risk factor
• Women with fragility fractures
• Women in Menopause transition with secondary causes
• Radiological evidence of osteopenia & presence of vertebral compression fractures

Clinical Practice Guidelines on Post Menopausal Osteoporosis 2012, Indian Menopause Society
Recommendations Of DXA Scan In Indian Females

• Before initiating pharmacotherapy for osteoporosis

• The Interval Testing should be based on calculated individual risk, mostly be scheduled between 1 & 5 years later

Clinical Practice Guidelines on Post Menopausal Osteoporosis 2012, Indian Menopause Society
**World Health Organization**

**Osteoporosis Diagnosis**

<table>
<thead>
<tr>
<th>T-score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal BMD</td>
<td>T-score between -1 and +1 SD</td>
</tr>
<tr>
<td>Low BMD SD (Osteopenia)</td>
<td>T-score between -1 and -2.5</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>T-score between -2.5SD or lower</td>
</tr>
<tr>
<td>Severe Osteoporosis</td>
<td>T-score of -2.5 or lower and fracture(s)</td>
</tr>
</tbody>
</table>

* Measured at the hip, spine or wrist
Assessment – Investigations

Premenopause
- Health concerns including family history
- General health/disease management (lifestyle issues such as physical activity, diet, smoking, alcohol, obesity)

Peri and Early Menopause
- Management of:
  - Menopausal symptoms
  - Vulvovaginal atrophy
  - Prevention of osteoporosis
  - Sexual dysfunction

Postmenopause
- Therapeutic Lifestyle Management
- Contraceptive needs AUB

Management of:
- Menopausal symptoms
- Vulvovaginal atrophy
- Prevention of osteoporosis
- Sexual dysfunction
Management Plan At Menopause

Group 1 - Women Without Menopausal Symptoms

Group 2 - Women With Menopausal Symptoms
Management Plan At Menopause
Group 1 – Women Without Menopausal Symptoms

a. Healthy with no problems, no symptoms - Institute preventive and promotive care

b. Healthy with risk factors for disease, no symptoms—Evaluate, institute preventive health care

c. Women with latent disease(pre-disease), no symptoms- Evaluate, treat the disease, institute individualized lifestyle health care,

d. Women with co-morbidities, no symptoms- Treat the disease, institute individualized lifestyle health care,
Management Plan At Menopause
Group 2 – Women With Menopausal Symptoms

a) Healthy with no problems, symptoms of menopause
   • Institute preventive and promotive care health care, treat with MHT

b) Healthy with risk factors for disease, symptoms of menopause
   • Institute preventive health care risk benefit analysis before therapeutic intervention
Management Plan At Menopause
Group 2 – Women With Menopausal Symptoms

c) Women with latent diseases, symptoms of menopause
   • Institute individualized lifestyle health care, risk benefit analysis before therapeutic intervention

d) Women with co-morbidities, symptoms of menopause
   • Institute individualized lifestyle health care, treat the disease, risk benefit analysis before therapeutic intervention