Long term Sequelae in Natural and Surgical Menopause
OBJECTIVE

Strategies to prevent long term consequences
EXPECTED OUTCOME

a) Understanding long term problems
b) Understanding preventive strategies
c) Risk assessment and advice for preventing and treating the following
   ● Osteoporosis
   ● Cardiovascular Disease
   ● Sexual dysfunction
   ● Urinary Incontinence and Prolapse
   ● Cognition, Alzheimer’s Disease
LONG TERM SEQUELAE

- Osteoporosis
- Cardiovascular Disease
- Urogenital problems
- Cognition: Alzheimer's Disease
Menopause, Age-Related Bone Loss

- Dietary calcium intake
- Vitamin D intake and synthesis
- Calcium absorption
- Estrogen deficiency
- Plasma calcium
- PTH secretion
- Bone turnover and resorption

Bone Loss
OSTEOPOROSIS - silent thief and killer

- Accelerated Bone loss - 2-5% per year in the first 5-10 years after menopause and then slows down to 1% per year

- Bone loss is due to increased resorption of bone without compensatory bone formation resulting from lack of the regulatory effect of estrogen on bone resorption
Estrogen Deprivation On Bone

- 5% of Trabecular bone and 1.5-2.0% of cortical bone loss after menopause per year.
- 20 years PM bone loss - 50% of trabecular bone 20% of cortical bone
OSTEOPOROSIS

- India: 30 million women
- 40-50% women over 50
- 90-100% women over 60
- Extremely high morbidity & mortality
- Prevention is the key

*Indian Menopause Society Guidelines on PMO 2013*
OSTEOPOROSIS: SITES

- Osteoporosis can affect the entire skeleton
- Osteoporotic fractures can occur at any site.

The most common sites are:

- Lumbar & thoracic spines
- Proximal femur.
- Distal radius
GOALS OF PREVENTION

- Optimise skeletal development
- Maximise peak bone mass
- Prevent age related & secondary causes of bone loss
- Preserve structural integrity
- Prevent fractures
5 Steps for prevention

- Calcium & Vit D
- Weight bearing & resistance exercise
- Avoid smoking & excess alcohol
- Talk about bone health
- BMD & medication
WHEN TO START

- In- Utero—Adequate RDA of Calcium and Vitamin D
- Adolescence
- Attainment of optimal peak bone mass
- Normal puberty
- Maintain adequate menstrual function
- PCOS
RISK OF FALLS

- Frailty
- Poor visual acuity
- Impaired hearing
- Neurological medication
- Minimize risk: gait & balance training
- Good lighting, hearing aids
- Remove loose rugs, wires
- Hand rails, hip protectors
Fragility Fracture

- A fragility fracture has been defined by the WHO as “a fracture caused by injury, which would be insufficient to fracture normal bone: the result of reduced compressive and/or torsional strength of bone.”

- Clinically, a fragility fracture can be defined as one which occurs as a result of minimal trauma, such as a fall from a standing height or less, or no identifiable trauma.
Morbidity after vertebral fractures

- Back pain
- Loss of height
- Deformity (kyphosis, protuberant abdomen)
- Reduced pulmonary function, Breathing difficulties, GI Reflux
- Diminished quality of life: loss of self-esteem, distorted body image, dependence on narcotic analgesics, sleep disorder, depression, loss of independence
MORBIDITY AFTER HIP FRACTURE

One year after an hip fracture:

- Death within one year: 20%
- Permanent disability: 30%
- Unable to walk independently: 40%
- Unable to carry out at least one independent activity of daily living: 80%

Cooper C, Am J Med, 1997;103(2A):12S-17S
What Is The Role of The Gynecologist?

- **At Adolescent & Adult Age**
  - To achieve a peak bone mass

- **At Peri-menopause**
  - To prevent osteoporosis in high risk group

- **At Late Post-menopause?**
  - To prevent age related osteoporosis (>65y)
Role of Gynecologist

At adolescent & adult age:

- To reduce bone loss secondary to drugs:
  - Gn Rh Analogue.
  - Dopamine Agonist
  - Glucocorticoid
  - Depo-provera?
Role of Gynecologist

At Peri-menopause.

- To Prevent osteoporosis in high risk group:
- Screening
- Management
GOALS OF THERAPY

- Prevent first fragility fracture or future fractures if one has already occurred.
- Stabilize/increase bone mass
- Relieve symptoms of fracture and/or skeletal deformities
- Improve mobility, functional status, and psychological well being
- Initiate lifestyle changes to enhance prevention of fractures

“Prevention is better than cure”

Indian Menopause Society Guidelines on PMO 2013
Indications for DXA (Grade B):

- All post-menopausal women more than 5 years of menopause.
- Women with fragility fractures.
- Post-menopausal women less than 5 years of menopause with risk factors.
- Women in menopause transition with secondary causes.
- Radiological evidence of osteopenia and presence of vertebral compression fracture.
- Before initiating pharmacotherapy for osteoporosis.
- To monitor therapy – the interval to the next test should depend on the calculated individual risk and would mostly be scheduled between 1 years and 5 years later.
- Emerging indications are to measure total body fat and lean tissue mass.

*Indian Menopause Society Guidelines on PMO 2013*
EXERCISE

- Adequate physical activity is needed to maintain bone health. Brisk walking 4–5 times a week for 30 minutes for hip, back strengthening exercises for spine, and resistances exercises for the upper arm is specific to maintain bone health (Grade B).

- Patients with severe osteoporosis should avoid engaging in motions, such as forward flexion exercises, using heavy weights, or even performing side-bending exercises, because pushing, pulling, lifting, and bending exert compressive forces on the spine that may lead to fracture (Grade A).

*Indian Menopause Society Guidelines on PMO 2013*
PERSONAL SAFETY

- Slow walking for good balance
- Wear shoes that grip well
- Always look where you are going and watch where you are stepping
- At night avoid walking in poorly lighted areas or use torch.
- Use hand rails while going up and down stairs
- Avoid taking medication that alter your sense of balance
Current Therapy for Osteoporosis

Prevention
- Estrogen
- Raloxifene
- Alendronate
- Risedronate
- Tibolone
- Phytoestrogens
- Thiazide Diuretics - 20%
  ↓ Hip fracture

Treatment
- Alendronate
- Ibandronate
- Teripertide
- Strontium Ronelate
- Risedronate
- Raloxifene
- Calcitonin
- Tibolone
- HT

Hypertension with osteoporosis - J-Bone Miner 1995
CONCOMITANT THERAPY

- HT + Bisphosphonates
- Raloxifene + Bisphosphonates
- Additive effects on BMD & bone turnover markers
- No additive effect on fracture reduction
- Not recommended

AACE Guidelines for Prevention & Treatment of Postmenopausal Osteoporosis 2003
Osteoporosis Therapy Algorithm
Postmenopausal Women

Risk of Fracture

AGE

STAGE

At Risk/Osteopenia

Osteoporosis

Severe Osteoporosis

BMD (T-score)

Higher

-2.5

Lower

50 55 60 65 70 75 80 85 90

Risk of Fracture

Raloxifene

Bisphosphonates Or Strontium Ranelate

Calcitonin

HRT

HRT

Calcitonin

Osteoporosis Therapy Algorithm
Postmenopausal Women
CARDIOVASCULAR DISEASE

- Loss of protection provided by estrogen on HD
- Lipoproteins, increases the risk for CVD
- One in three women older than 65, has some evidence of CVD
- By age 55, 20% of all deaths are caused by CVD
- 30 to 40% of women eventually die of CVD
# Therapeutic Goals for LDL-C at Various Risk Levels: NCEP ATP III

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>LDL-C Goal (mg/dL)</th>
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<tbody>
<tr>
<td>High risk: CHD or CHD risk equivalent</td>
<td>&lt;100</td>
</tr>
<tr>
<td>Very high risk</td>
<td>&lt;70 (therapeutic option)</td>
</tr>
<tr>
<td>Moderate risk: multiple (≥2) risk factors</td>
<td>&lt;130</td>
</tr>
<tr>
<td>Moderately high risk</td>
<td>&lt;100 (therapeutic option)</td>
</tr>
<tr>
<td>Lower risk: &lt;2 risk factors</td>
<td>&lt;160</td>
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</tbody>
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In patients at moderate or high risk, NCEP 2004 update advises that lipid-lowering therapy should result in at least a 30%-40% reduction in LDL-C.

Alternative Measures of HDL as Predictors of CHD Events in VA-HIT

Adjusted for treatment, age, hypertension, smoking, BMI, and diabetes

PREVENTION OF CVD

- Maintain optimum weight by diet & exercise
- Avoid smoking
- Fat free diet, salt restriction
- Physician/ Cardiologist referral
- Treatment of Hypertension & Dyslipidaemia
- Statins, Fibrates, Aspirin
WINDOW OF OPPORTUNITY

- HT for Cardio-protection?
- Early post menopausal years (5-10yrs)
- Supported by animal & lab data
- Delay the onset of atheroma
- Endothelium healthy, elastic, able to dilate
- Primary prevention: May benefit when given for other indications
- Not yet as primary indication
- Not for secondary prevention
Local oestrogen therapy may improve or cure urge incontinence.

Systemic oestrogen therapy (CEE) may worsen incontinence.

Cochrane Review 2010: Oestrogen Therapy in for urinary incontinence in postmenopausal women
GENITAL PROLAPSE

- Menopause precipitates prolapse in women with existing predisposing factors.

- Pelvic organ prolapse can be reversed only with the use of pessary or surgical correction.
Cognition – group of mental processes by which knowledge is acquired or used.

No firm evidence of association of cognition and menopause transition

Estrogens modulates several neurotransmitter systems. Difficulty in concentrating and memory loss are common complaints during menopause transition, more evident after surgical menopause.
CASE

- 47 yr old woman for health check
- Asymptomatic
- Hypothyroid, on Thyroxine since 12 yrs
- Sister had a Hip fracture at age 54
- BMI 18

What is her main risk?

- Osteoporosis
The result of DXA: T Score – 2

Osteopenia

T score -2
Interpretation of Results

- **Osteopenia** – 2 fold increase in fracture compared with normal

- **Osteoporosis** – 4 to 5 fold increased risk of fracture

- **Severe osteoporosis** – 20 fold increased risk of fracture
What can be offered?

- As the patient has significant risk of Osteoporosis and has no contraindication, HT may be offered for prevention of Osteoporosis.
GUIDELINE

- HT appropriate first line therapy for women under age 60 with increased risk of fracture
- HT cessation, protective effect declines
- Not recommended after 60 for sole purpose of prevention of fractures
CASE

- 50 yr old, High profile job
- Underwent TAH, BSO for Fibroids
- 2 mths ago
- Presents with hot flushes since 1 mth
- Gynaec said to have Soya & Tofu
- No relief, come for second opinion
- Clinically NAD
Should ovaries have been removed?

- Why not?
- Ovaries continue to produce androgen after Menopause, which is useful for bone health, mood and libido

What about the tubes?

- Preferable to do salpingectomy to avoid Hydrosalpinx and maybe Ca Ovary

Management?

- After counseling, chose to have HT
- Reports after 6 months
- Company doctor told her to stop HT
- Now has memory lapses & insomnia
- Refd to Psychiatrist

What would you do?

- Detailed counseling and offer her HT again
CASE

- 60 yr old
- H/o CABG for CAD 2 yrs ago
- C/o night sweats, nocturia, frequency, urgency, joint pains & backache
- Urine Routine : PC 15-20
- Culture : No growth
- BSL F :102 & PP: 136
- BMD : T Score at LS : – 1.8
Was on HT before surgery
Wants to go back on it

What would you do?

- Vaginal Estrogen Cream
- Bisphosphonates
- HT ?
- Not for secondary prevention and over 60
EVIDENCE

- No role of HT for secondary prevention in women
- Secondary prevention of CVD should be by non-hormonal methods
- Pre-existing HT can be continued if there is an indication

*Health Plan for the Adult Woman*
*Council of Affiliated Menopause Societies 2005*
CASE

- 46 yr old, anxious woman
- Mother has Alzheimer’s
- Asymptomatic
- Clinically NAD
- Has heard that AD can be prevented by HT
- Asks for your opinion
ALZHEIMER’S DISEASE

- HT does not improve symptoms
- Initiated early: Lowers risk of AD
- Further research warranted
- Early window for benefit may exist
- HT increases dementia risk if initiated after 65 & does not improve symptoms in women with Dementia
“It may be that just as it takes a healthy endothelium to respond to estrogen, it may take a healthy neuron to respond to estrogen and protect against Alzheimer's disease”

Leon Speroff
Which are not modifiable risk factors for ‘Osteoporosis’?

a) Adequate calcium intake
b) Advancing age
c) Exposure to sunlight
d) Smoking and alcohol
e) Family H/O fragility fractures
- Vaginal ET benefits women with
  - urge incontinence & reduces risk of
  - recurrent UTI- T/F
Answer- True

- HT has a role in secondary prevention of cardiovascular diseases in post-menopausal women- T/F
Answer- False

- HT is appropriate first line therapy
  - for women under age 60 with
  - increased risk of fracture- T/F
Answer- True