

Guidelines

Menopause Management: A Manual for Primary Care Practitioners and Nurse Practitioners

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SUPPLEMENT

MENOPAUSE MANAGEMENT

A MANUAL FOR PRIMARY CARE PRACTITIONERS AND NURSE PRACTITIONERS



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Title	Page No.
Preface	S4
Acknowledgments	S5
Resource Faculty	S6
Executive Summary	S8
Epidemiology of Menopause and Associated Problems in South East Asia Region	S10
Implementation in Menopause Care: Country-Specific Context	S14
Modules	S16
1: Basics of Menopause	S16
2: Effects of Menopause	S18
2.1: Immediate	
2.2: Intermediate	
2.3: Long term	
3: Evaluation at Menopause	S22
3.1: General History and Clinical Examination	
3.2: Risk Assessment for Chronic Diseases	
3.3: Screening for Cancers	
3.4: Premature Ovarian Insufficiency	
3.5: Obesity	
4: Management of Menopause	S29
4.1: Therapeutic Lifestyle Management	
4.2: Nonhormonal Therapy	
4.3: Hormonal Therapy	
4.4: Immunization	
5: Tool Kit for Menopause Management	S39
5.1: Setting Up of a Menopause Clinic	
5.2: Screening for Diabetes Mellitus	
5.3: Risk Assessment for Cardiovascular Disease	
5.4: Risk Assessment for Breast Cancer	
5.5: Risk Assessment for Bone Health and Skeletal Muscle	
Annexures	S43
1: Mid-Life Health Card	
2: Menopause Rating Scale	
3: Algorithm for Menopause Management	
4: Algorithm for Prescribing Menopause Hormone Therapy	
5: Algorithm for Management of Osteoporosis	
6: Medication for Osteoporosis	
7: Algorithm for Management of Sarcopenia	
References	

PREFACE

Menopause: Setting the stage for healthy aging

With an increase in life expectancy, we expect women to live approximately one-third of their lives after menopause. In 1990, 467 million women aged 50 years, and by 2030, we expect this global figure to rise to 1200 million (World Health Organization [WHO] data). This demographic and epidemiological shift would cause noncommunicable diseases to be the primary cause of morbidity and mortality in middle-aged and older women.

We give a woman adequate care from adolescence to the reproductive-age group. Over the past decade, policymakers have become active in protecting the rights of the elderly regarding pension, health welfare, and reproductive and sexual rights. However, there is a glaring gap in managing the health issues of midlife women (45–60 years). The policymakers have overlooked midlife women as they cross the boundaries of the reproductive period and do not fall under old age.

In midlife, menopause is the most notable event. Estrogen deprivation associated with menopause causes undesirable symptoms and long-term health consequences. The health needs differ from the younger women, and health services are planned accordingly. Therefore, the International Classification of Diseases lists this natural phenomenon as a disease. A well-managed menopause transition sets the stage for active and healthy aging.

The problems of women in menopause may vary according to the geographic region. In South East Asia Region (SEAR), many countries have dedicated menopause societies working toward the cause of awareness, education, and management of these women's health needs. However, menopausal specialists are not available at all levels. Empowering and educating Primary care physician (PCPs) at the first contact level both in preventive and aspects of healthcare for menopausal women are necessary to deliver

optimal care to this population segment.

The draft of the simplified manual on menopause health problems for PCPs is by extensive interactive hard work of menopausal experts across various SEAR countries, Asia Pacific Menopause Federation, Indian Medical Association, and the National Institute of Nursing in collaboration with South East Asia Regional Office (SEARO). We have taken input from the beneficiaries.

Hopefully, this document will enable the PCPs to provide optimal preventive care to the women in midlife and thus help enhance their quality of life by promoting active aging.

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EXECUTIVE SUMMARY

Menopause basics

- This manual is designed to provide basic knowledge to primary care physicians (PCPs) on different aspects of menopausal health. It provides information on the diagnosis of menopause, screening for diseases at menopause, evaluating and managing the women in midlife, and referring to a specialist as needed. The PCPs will be able to maintain the continuum of care with the knowledge gained
- Menopause is a transition phase from the reproductive to the nonreproductive stage in a woman's life
- Natural age-appropriate menopause is a clinical retrospective diagnosis after 12 months of amenorrhea. Serum follicle-stimulating hormone (FSH) and other laboratory tests are usually not needed to confirm the diagnosis
- Serum FSH is done to diagnose early menopause (40–45 years) and premature ovarian insufficiency (POI, <40 years) in women presenting with menopausal symptoms at a young age
- Changes in the duration and frequency of the menstrual cycle are considered physiological during the perimenopausal period yet need to be differentiated from pathological abnormal uterine bleeding (AUB)
- The menopause transition (MT) is the “window of opportunity” for PCPs to screen and treat women for noncommunicable diseases (NCDs) and malignancies to prevent long-term morbidity and mortality, promoting healthy aging
- The immediate symptoms of menopause are hot flashes, night sweats, sleep and mood disturbances, joint and muscle pain, vaginal dryness, and low sexual desire, which generally resolve over a while
- Genitourinary symptoms appear in the early postmenopausal period and may worsen over some time if not treated
- The long-term consequences of menopause affect bone and cardiovascular health, which worsen with aging
- Menopause increases the abdominal fat predisposing to metabolic syndrome. Obesity is closely related to several other chronic diseases, including heart disease, hypertension, type 2 diabetes, sleep apnea, certain cancers, and joint diseases
- The primary healthcare provider should understand the risk factors for NCDs and common cancers. The PCPs can institute timely primary intervention programs and work with specialists to treat women at

risk or with the disease to prevent the life-threatening sequelae

- The approach to clinical examination should be directed to a complete health evaluation rather than addressing issues related to menopause. A thorough assessment of the health-related problems helps in formulating a treatment plan
- It is essential to distinguish between symptomatic and asymptomatic menopausal women and have an individualized management plan for active and healthy aging.

Screening and evaluation at menopause

- The aim is to screen and diagnose specific menopause-related issues and age-related diseases and plan individualized management strategies
- The aim is to assess the general condition of a woman by clinical examination and basic laboratory tests to understand the organ functions
- For cervical cancer screening, the World Health Organization (WHO) suggests a regular screening interval of every 3 years when using Visual Inspection after Acetic acid (VIA) or cytology as a primary screening test, where HPV DNA testing is not available
- The WHO suggests a regular screening interval every 5–10 years when using HPV DNA detection as a primary screening test
- After 50 years of age, the WHO suggests stopping screening after two consecutive negative screening results consistent with the recommended regular screening intervals
- The Global Breast Cancer Initiative was introduced on March 8, 2021 (International Women's Day) by the WHO to reduce global breast cancer mortality by 2.5% per year until 2040, averting about 2.5 million deaths
- The global initiative is based on interventions as three pillars: health promotion through public education, timely diagnosis by the PCPs, and comprehensive treatment and supportive care by the specialist
- Screening for endometrial cancer (EC) is not indicated for women with no identified risk factors
- Increased awareness of the symptoms of early ovarian cancers may help reduce the delay in diagnosis and hopefully improve outcomes.

Management of menopause

Education, counseling, and motivation have an essential role in managing menopause and related consequences.

Controlling major risk factors such as harmful use of tobacco, alcohol consumption, obesity, unhealthy diet,

and physical inactivity can lower NCD risk factors and reduce premature deaths by half to two-thirds in the general population.

Promoting the concepts of lifestyle education in midlife as the first line of management will address the NCD risk and menopausal symptoms.

Prescription of a healthy diet plan is a good strategy for healthy living.

Exercise prescription will include encouraging daily activities, and a dedicated physical exercise plan helps maintain a healthy weight, improves bone density, coordination and balance, muscle strength and joint mobility, lipid profiles, and genitourinary problems, relieves depression, and induces sleep.

Social interactions, either in an exercise program or otherwise, help the postmenopausal women to improve mood, relieve depression, and relieve anxieties.

Age-appropriate adult vaccination could help reduce morbidity and mortality from vaccine-preventable diseases (VPDs).

Pharmacotherapy

The most effective treatment for vasomotor symptoms (VMSs) is systemic menopausal hormone therapy

(MHT). Women needing MHT should be referred to a specialist.

Women with contraindications to MHT, or those who prefer not to use hormones, may choose to use nonhormonal medicines to relieve VMSs. These are not as effective as MHT.

Selective serotonin reuptake inhibitors (SSRIs), serotonin, and norepinephrine reuptake inhibitors (SNRIs) or clonidine are prescribed when MHT is contraindicated.

Isoflavones or black cohosh may relieve VMSs, but the evidence on the different preparations, interaction with other medicines, and safety is uncertain.

- The risk of venous thromboembolism (VTE) is increased with smoking, increasing age, and obesity
- Transdermal appears to be safe when needed in women with the normal and at high risk for VTE.

Risks and benefits of MHT differ for women during the MT compared to those for older women. Not all MHT preparations have the same risk and side effect profile; treatment should be individualized for each patient.

EPIDEMIOLOGY OF MENOPAUSE AND ASSOCIATED PROBLEMS IN THE SOUTH EAST ASIA REGION

Target audience

Primary care practitioners and nurse practitioners/midwives

Learning objectives

- To understand the epidemiology of menopause and associated problems in the context of South East Asia Region (SEAR) countries
- To understand the challenges of availability of menopausal healthcare in SEAR countries
- To promote skill up-gradation of primary care physicians in menopausal healthcare.

Introduction

The WHO has defined menopause as the permanent cessation of menstruation from the loss of ovarian follicular activity.^[1] It is a universal and irreversible part of the aging process involving a woman's reproductive system. Menopause is diagnosed after 12 months of amenorrhea and is characterized by various symptoms. Menopause may result as a result of medical or surgical intervention. With an increased life expectancy, women now live approximately more than one-third of their life after menopause.^[2]

Importance of menopausal health

The International Classification of Diseases has listed menopause, a natural phenomenon, as a disease. It supposedly alters the function of the human body resulting in menopausal symptoms termed "menopausal syndrome" that affects the quality of life (QOL). Besides, menopause may be a risk factor for various chronic diseases such as coronary artery

diseases, stroke, diabetes, obesity, hypertension, osteoporosis, and urogenital problems. Commonly reported symptoms at perimenopause include changes from regular, predictable menses, hot flushes, night sweats, disturbances in sleep, frequency of urination, dryness of the vagina, poor memory, anxiety, and depression.

Studies on Asian women from different ethnic backgrounds have reported symptom prevalence rates ranging between 5% and 93%.^[3] Physical and somatic symptoms predominate, followed by psychological symptoms, VMSs, and sexual symptoms.^[4] Studies on menopause among African-Americans and Caucasians have reported a higher prevalence of VMSs, vaginal dryness, and psychological symptoms around menopause.^[5] Therefore, in most developed countries, MHT is often recommended to prevent these distressing symptoms. Studies on issues relating to the effect of menopause on women and the feasibility and impact of MHT in the healthcare system in India and other SEAR countries are lacking. Epidemiology of Menopause in South East Asia Region is presented in Table 1.

Postmenopause presents challenges to healthcare needs, for the morbidity and mortality implications after menopause are substantial; this is predominantly because of the protective effects of estrogen on the cardiovascular system and bone which disappears after menopause.^[6] Epidemiology of Menopause in South East Asia Region is presented in Table 1.^[7-81]

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Table 1: Epidemiology of menopause in the South East Asia Region

Country	Population	Life expectancy (years)	Mean age at menopause (years)	Prevalence of comorbidities				
				HT (%)	DP (%)	DM (%)	PMO (%)	CC (%)
Bangladesh	166,440,970 ^[7]	74.4 ^[8]	48-50 ^[9]	20 ^[10]	71	7.8 ^[11]	41.8 ^[12]	Breast ^[13]
Bhutan	780,696 ^[14]	73.3 ^[14]	49.2 ^[15]	17.4 ^[16]	11 ^[17]	7.7 ^[18]	-	Cervix ^[19]
DPR Korea	25,896,523 ^[20]	72.89 ^[20]	49.3 ^[21]	22.9 ^[22]	60.4 ^[23]	7.5 ^[24]	35.5 ^[25]	Breast ^[26]
India	1,394,197,982 ^[27]	70.3 ^[28]	46.7 ^[29]	45.4 ^[30]	24.9 ^[31]	U-19 R-15 ^[32]	16-65 ^[33] 33.1 ^[34]	Breast ^[35]
Indonesia	276,604,339 ^[36]	73.2 ^[36]	50.2 ^[37]	35.4 ^[38]	38.2 ^[39]	7.3 ^[40]	20.2-30 ^[41]	Breast ^[42]
Maldives	550,433 ^[43]	79.89 ^[43]	NA	32.9 ^[44]	54.9 ^[44]	4.7 ^[44]	15 ^[45]	Breast ^[46]
Myanmar	54,795,718 ^[47]	67.78 ^[47]	NA	29.8 ^[48]	50.7 ^[49]	9.2 ^[50]	53.8 ^[51]	Cervix ^[52]
Nepal	29,681,109 ^[53]	71.17 ^[54]	48.7 ^[55]	U-28.4 R-24.4 ^[56]	44.7 ^[57]	8.4% ^[58]	26-37.2 ^[59]	Cervix ^[60]
Sri Lanka	21,507,827 ^[61]	78.6 ^[62]	51 ^[63]	23.8 ^[64]	77.4 ^[65]	27.6 ^[66]	27 ^[67]	Breast ^[68]
Thailand	69,983,923 ^[69]	77.74 ^[69]	49.5 ^[70]	24.6 ^[71]	66.5 ^[72]	9.6 ^[73]	19.8 ^[74]	Breast ^[75]
Timor Leste	1,345,626 ^[76]	70.18 ^[76]	51.02 ^[77]	39.5 ^[78]	25.5 ^[79]	15 ^[80]	NA	Breast ^[81]

*NA: Not available, HP: Hypertension, DP: Dyslipidemia, DM: Diabetes mellitus, PMO: Postmenopausal osteoporosis, CC: Commonest cancer, U: Urban, R: Rural

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IMPLEMENTATION OF MENOPAUSE CARE: COUNTRY-SPECIFIC CONTEXT

Target audience

Primary care practitioners.

Scope and objectives

Need

1. As the life expectancy nowadays is higher, there is an increase in the number of menopausal age women (global estimate of 1200 million by 2030)^[1]
2. It is estimated that by 2030, the number of postmenopausal women living in developed regions will decline to 24%, and 76% will be living in developing countries^[2]
3. The female-to-male mortality ratios from all causes except breast cancer and EC decline to low levels around menopause, rising again over the next decade to be equal in both genders. Menopause presents challenges to healthcare needs for the substantial rise in mortality after late menopause^[3]
4. Understanding the health of menopausal women and developing health promotion programs are the need of the hour. Therefore, shifting the focus of public health personnel to address middle-aged women's emerging health issues and fill the knowledge gap of service providers is essential. Strong emphasis is on improving existing medical facilities to impart better services according to the changing needs of middle-aged women
5. Organized and focused training in menopausal medicine is limited even in developed countries. Recent trends in medical education have revealed the inadequacy in knowledge and skills about menopausal health and care among students and trainees, leading to frustration and potential adverse outcomes in their clinical practice in this crucial area of care for midlife women
6. We have perceived menopausal medicine to differ significantly from internal medicine and other areas of medical science, as it needs to address the multifactorial nature of problems secondary to hormonal deprivation. Several vital issues need to be understood by primary care practitioners (PCP), such as need to understand the preventive aspect of diseases in postmenopausal time, lifestyle modification and involvement of the family, and other support systems that are not taught or discussed in conventional basic medical education programs.

Availability of menopausal healthcare

None of the SEAR countries has designated service delivery programs for menopausal care in either the

preventive or curative arm of health services despite menopausal societies in some countries. Although Indonesia has an elderly health service post in every district, neither social insurance nor administration accepts menopausal health as a part of their services.

Level of healthcare system

Primary healthcare

Primary healthcare is central to the healthcare system. The PCP/healthcare worker is the first point of contact for the local population to provide accessible, continuous, comprehensive, and coordinated care. The need is to have a primary healthcare center with infrastructure and trained human resources to provide short-term care and simultaneously focus on the long-term health concerns of a woman. The range of services offered should be wide and appropriate to take care of the common problems in that population. Provision for coordination with specialists should be available. Therefore, primary healthcare describes the concepts and models around the single most significant player, the PCP.

A primary care physician (PCP) provided the first contact of care for an undiagnosed health problem in the short term and continued care for varied medical conditions, irrespective of course, organ system, or diagnosis.

Primary care/family medicine (FM) teams are patient-centered and can address the health needs of menopausal women both as a physician and on a social platform. Thus, ensuring a functioning primary healthcare system in society will go a long way in providing care to the ever-increasing menopausal population.

Skill up-gradation of primary care physicians in menopausal healthcare

Menopausal healthcare is not an identified subject in preservice training, in-service training, and postgraduate training, nor is the availability of postgraduate training in FM or general practice. The concept of FM or primary care teams is growing, depending on the goals and functioning of the healthcare system.

The WHO-South East Asia Regional Office (WHO-SEARO) has provided technical and financial help to the Member States in geriatric health since the late 1990s. Some such States are incorporating old-age care services into their health systems. They have attempted to address training and skill up-gradation issues by organizing short-term training programs for primary care physicians regarding service delivery but none specifically for menopausal healthcare.

India was the first country to undertake this activity. A well-designed training program, funded by the WHO-SEARO, started in 1998–1999, sensitized 180 medicine

teachers in 100 medical schools for older adults, followed by short-term training to over 2000 primary care physicians over the next decade. The program created awareness among professionals, the public, and policymakers about issues related to aging and the need for dedicated services, thus providing a critical mass of health professionals trained in the care of the older population. The ultimate result of these WHO-SEARO-sponsored activities was planning and launching a National Program for Health Care of the Elderly in India.

Apart from India, The WHO-SEARO has also sponsored training programs in old-age care in Maldives, Myanmar, Sri Lanka, and Timor Leste in collaboration with WHO Country Offices and agencies of the Member States. However, these countries lack a designated national program on menopausal health management under reproductive or elderly healthcare programs.

For training PCPs in the care of menopausal women, good-quality training, uniformity of content, and involvement of the state and professional associations are essential. These programs must cover physicians in public and the private sector, as older patients seek care from any health system they can access with ease and cost-effectiveness.

The development of this manual on healthcare management of menopausal women for PCPs undertaken by the WHO-SEARO in collaboration with different menopausal societies is the first step in this direction.

Implementation of the manual

This manual is a base for sensitizing and training the PCPs at the national level. The initial step is identifying trainers from the menopausal societies, and they would conduct a trial run of the manual for training the PCPs. The training sessions would be audiovisual presentations, digital-based, physical, or hybrid with inputs from this manual.

1. The PCPs will receive the training material for clinical practice as soft and hard copies. We will provide the PCPs with user-friendly mobile apps (available with the Indian Menopause Society). Field testing will follow the training by PCPs in their region and changes incorporated according to local needs. After 3 months, the plan is to repeat a follow-up with an interactive training session with a pre- and post-test questionnaire. The data collected will be analyzed and used to understand the strengths and limitations of the program.

MODULE 1: BASICS OF MENOPAUSE

Learning objective

1. To understand various stages of reproductive aging
2. To assign a diagnosis of menopause
3. To understand terms and definitions related to menopause
4. To counsel, treat, and refer women as needed.

Introduction

Menopause is a natural transition from the reproductive to the nonreproductive phase in a woman's life. The stages of a woman's life are depicted in Figure 1. Menopause is a nature's protective phenomenon against reproductive morbidity and mortality in the aging population. It sets the aging stage and speeds up the process of NCDs.

Definition

The WHO defines menopause as the permanent cessation of menstruation resulting from loss of ovarian follicular activity.

According to the Stages of Reproductive Ageing Workshop, it is diagnosed after 12 months of amenorrhea following the final menstrual period with no other apparent pathological or physiological cause.

The estimated average age of menopause in the SEAR countries is 46–51 years.

Physiology

Menopause results from the loss of ovarian function and a dramatic fall in the production of the female hormone estrogen. Natural menopause occurring at an appropriate age is due to programmed cell death of the ovarian follicles and the ovaries shrink. Ovarian follicles may be destroyed due to other factors such as surgical removal of ovaries, chemotherapy, and radiation irrespective of aging, leading to premature ovarian insufficiency (POI) and early menopause.

Decreasing ovarian function causes a low estrogen level, which stimulates the pituitary gland to increase gonadotropin production to stimulate the ovary to produce estrogen. The ovary becomes less sensitive to the rising gonadotropin, and the ovary do not produce the ova (eggs).

Lack of estrogens from the ovary and increasing levels of gonadotropin, FSH and luteinizing hormone

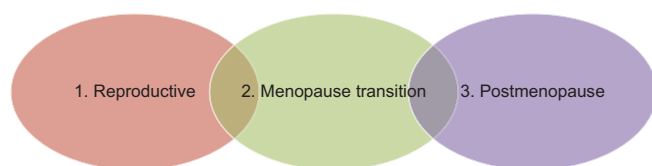


Figure 1: Stages in a woman's life

(LH), norepinephrine, dopamine, and prostaglandins at menopause affect the reproductive and the nonreproductive organs, leading to various symptoms, as depicted in Figure 2.

Diagnoses of menopause

- It is a clinical diagnosis based on the history of change in menstrual patterns and menopausal symptoms
- It is a retrospective diagnosis after 12 months of amenorrhea
- The earliest symptom changes from predictable menses to shorter cycles <7 days in the early perimenopause or MT to >60 days of amenorrhea in the late perimenopause. Other symptoms experienced are VMSs, urogenital symptoms, and sleep and mood dysfunction
- Exclude pregnancy, lactation, hormonal intake, hysterectomy with intact ovaries and other causes of secondary amenorrhea
- Laboratory tests are not needed to diagnose menopause
- Serum FSH and other tests are indicated to diagnose POI (<40 years), early menopause (40–45 years), and fertility issues and to rule out secondary causes of amenorrhoea
- Refer to Table 1 for interpreting FSH values.

Related definitions

- Premenopause is the entire reproductive period, up to the final menstrual period

Table 1: Interpretation of follicular-stimulating hormone levels

FSH >10 IU/L - declining ovarian function
 FSH >25 IU/L - are diagnostic of impending ovarian failure in the perimenopausal age group with VMSs even in the absence of cessation of menstruation

FSH >40 IU/L - done at least 4 weeks apart is diagnostic of menopause

VMSs: Vasomotor symptoms, FSH: Follicular-stimulating hormone

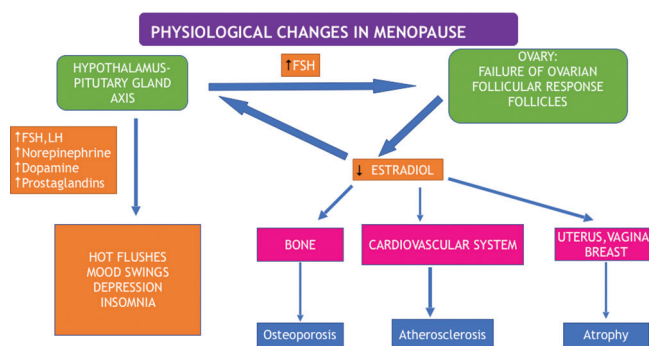


Figure 2: Physiological changes at menopause. FSH: Follicle-stimulating hormone, LH: Luteinizing hormone

- Natural or spontaneous menopause is recognized to have occurred after 12 months of amenorrhea, for which there are no obvious other pathological and physiological causes
- Induced menopause: Menopause may be induced through medication (temporarily to suppress ovarian function) or permanently damaged by treatments, usually for carcinogenic illnesses (pelvic radiation or chemotherapy)
- Surgical menopause: Menopause occurs earlier than expected when surgery involves the removal of both the ovaries
- Perimenopause or MT: An increased FSH, irregular menstrual cycles, and onset of menopausal symptoms characterize the onset of MT. It is immediately before and up to 1 year after the final menstrual period. The duration of MT varies from 2 to 10 years with an average of 4 years; earlier onset of symptoms relates to a more extended transition phase
- POI: POI is spontaneous menopause below the age of 40 years
- Early menopause: Spontaneous or induced menopause occurs between 40 years and the accepted typical age of menopause for a population
- Postmenopausal bleeding: Postmenopausal bleeding (PMB) is vaginal bleeding following a woman's final menstrual cycle and not on cyclical hormone therapy (HT). However, vaginal bleeding that occurs 6 months after amenorrhea should be considered suspicious and warrants investigation
- Midlife: Typically defined as age 40–65 years, it is a challenging time for women with significant biological, psychological, behavioral, and social changes and role transition [Figure 3].

During menopause, physical, biological, and emotional changes may lead to immediate and chronic problems in susceptible women. Symptoms and signs that present at menopause transition may extend beyond menopause. Symptoms associated with menopausal are irregular periods, vaginal dryness, hot flashes, chills, night sweats, sleep problems, mood changes, weight gain, urinary incontinence, sexual dysfunction, slowed metabolism, thinning hair, dry skin, and loss of fullness of the breast. In postmenopause, the risk of certain medical conditions, such as heart disease, osteoporosis, cognitive decline, and certain types of cancer, increases [Figure 3].

Advantage of managing the perimenopause or the menopause transition – “The window of opportunity”

Menopause does not need treatment. Medical treatment is required for women suffering from symptoms affecting

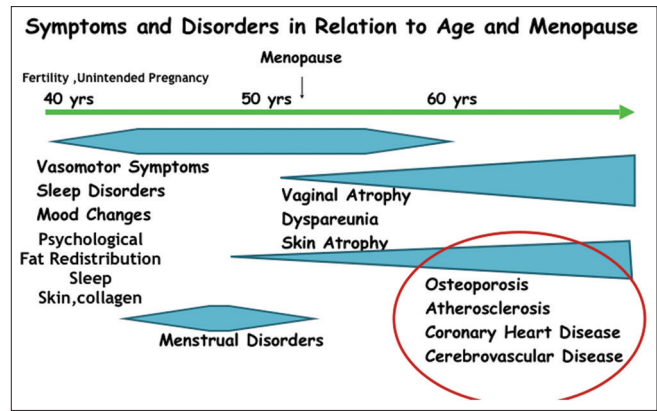


Figure 3: Symptoms and disorders in relation to age and menopause. Source: Bungay G, et al. Br Med J 1980;281:181-3; Van Keep PA, et al. Maturities 1990;12:163-70.

their QOL. All women transiting through menopause need preventive care and promotion of health.

The MT is the critical “Window of Opportunity” to screen women for NCDs such as hypertension, diabetes, heart disease, and cancers to prevent long-term morbidity and mortality. It is the time to address age-related impairments of hearing, vision, and teeth.

Primary care practitioners can help optimize women’s physical, mental, and psychological activities in their later years through preventive healthcare and management at the “Window of Opportunity.” Interventions such as healthy behavioral change, e.g., physical activity, healthy dietary change, smoking cessation, stress management, and healthy sleep behaviors, during the MT and midlife help prevent or delay aging chronic diseases. On indication, women benefit from MHT when given during this window of opportunity at menopause transition.

Women may need specialist care if:

1. Diagnosis of menopause is uncertain
2. Heavy menstrual bleeding
3. Severe symptoms of menopause
4. Menopausal symptoms before the age of 40 years (POI)
5. PMB.

Key points

1. Menopause is when a woman transits from the reproductive to the nonreproductive phase in a woman’s life
2. It is a clinical, retrospective diagnosis after 12 months of amenorrhea. They usually need no tests to make the diagnosis
3. The MT is the window of opportunity to screen and treat women for NCDs and malignancies to prevent

long-term morbidity and mortality and promote healthy aging

4. The changes in the duration and frequency of the menstrual cycle are considered normal at MT yet need to be differentiated from AUB.

MODULE 2: PHYSIOLOGY AND PATHOLOGY OF MENOPAUSE

Learning objective

1. To recognize the symptoms of menopause
2. To understand the short-term, intermediate, and long-term sequelae of menopause.

Menopause is a physiological transition phase in life due to declining estrogen levels and differs from illness. We may consider menopause with a multiplicity of symptoms that affect the QOL and as a biological marker for chronic diseases [Table 2]. Many women sail through menopause without problems.

Immediate problems

Menstrual irregularities

Changes in the duration and frequency of the menstrual cycle are considered normal at MT yet need to be differentiated from pathological AUB.

Bleeding irregularities at menopause may present as scanty and infrequent periods (70%) and heavy bleeding (18%), and there may be a sudden cessation of periods in 12% of the women.

Table 2: Phase of menopause: Impact of menopause according to phase of menopause

Phase of menopause	Effects of menopause
Menopause transition/ perimenopause	Menstrual irregularities
	Fertility and contraception issues
	Vasomotor symptoms
	Psychosocial
	Sexual symptoms
	Physical symptoms
Menopause	
Immediate	Vasomotor symptoms
	Psychological
	Sexual symptoms
	Physical symptoms
Intermediate	Genitourinary symptoms
Long term	Cardiovascular diseases
	Osteoporosis
	Neuropsychiatric symptoms
	Sequelae of genitourinary symptoms

Abnormal uterine bleeding

AUB is a frequent reason for a woman to visit her gynecologist and may present as:

- Heavier than usual bleeding, over 80 ml or associated with the passage of clots
- Prolonged duration of bleeding of over 7 days
- Menses more often than every 3 weeks
- Bleeding or spotting between the menstrual cycle and postcoital bleeding.

Fertility issues

There is a decline in fertility by the late 30s. Oocyte donation is the only effective treatment for ovarian aging.

Preconception counseling

Women planning for pregnancy at midlife, need to be counseled about optimal general health and screening for medical conditions, such as hypertension, diabetes, and pregnancy-related risks. With age, spontaneous pregnancy loss, chromosomal abnormalities, perinatal morbidity, and mortality increase. Psychological and social problems may cause traumatic effects in the elderly couple.

Contraception

As fertility declines, women can stop using contraceptives after 1 year without periods if over 50 and after 2 years without periods in under 50.

Age is not a contraindication for any method of contraception in women aged over 40 years. An individualized assessment of the risks and benefits of each contraceptive method should be offered.

According to the WHO Medical Eligibility Criteria (MEC) for women more or equal to 40 years, combined hormonal contraceptives are a safe option. Hormone replacement therapy is not a contraceptive.

The PCP can refer MEC wheel for contraceptive.

This wheel contains the MEC to be checked before starting contraceptive methods and recommends safe and effective contraception methods for women. The wheel includes recommendations on initiating the use of nine common types of contraceptive methods.

Symptoms of menopause

Vasomotor symptoms

VMSs include hot flushes, cold sweats, and night sweats. During a menopausal flush, there is no elevation of the core body temperature. The frequency and intensity of the symptoms vary among women. With time, the incidence of hot flushes for a woman increases typically during the MT, reaches the maximum during the first 2

years postmenopause, and generally declines over the next few years. Symptoms may last longer for some women.

For reproducibility and management, hot flushes and night sweats are graded as:

- Mild: Feeling of heat without sweating
- Moderate: Feeling of heat with sweating
- Severe: Feeling of heat with sweating and palpitation that disrupts usual activity.

Duration

It lasts for a few seconds to several minutes, averaging about 3–6 min.

Associated symptoms

Sweating, flushing, palpitations, anxiety, irritability and panic may also accompany hot flushes. Some women also experience formication (the sensation of crawling on or under the skin), while others feel faint or dizzy.

There may be other causes of flushing, sweating, and palpitation during menopause.

Systemic diseases

Anemia, thyroid diseases, migraine, Parkinson’s disease, carcinoid syndrome, mastocytosis, medullary thyroid carcinoma, pancreatic carcinoma, pheochromocytoma, renal cell carcinoma, Horner’s syndrome, anxiety, brain tumors, and spinal cord lesions.

Medications

Calcium-channel blockers, nicotinic acid, anti-estrogens such as raloxifene and tamoxifen, LH-releasing hormone agonists or antagonists, aromatase inhibitors, bromocriptine, cephalosporins, cholinergic drugs, calcitonin, chlorpropamide, ketoconazole, metronidazole, opiates, and alcohol.

Associated with eating and food additives

Hot beverages, monosodium glutamate (Chinese food), and food preservatives (sodium nitrite).

Infections

Tuberculosis, autoimmune deficiency syndrome, and recurrent urinary tract infections.

Sexual symptoms

Among postmenopausal women, the early sexual symptoms are dryness of the vagina. They may present with sexual desire disorder, dyspareunia, and vaginismus. There may be a decrease or loss of libido.

Psychological aspects

New-onset depression, anxiety, mood changes, loss of concentration, memory problems, and sleep disturbances are common in the MT.

Intermediate

Genitourinary symptoms

Genitourinary syndrome of menopause (GSM) includes any urinary, genital, or sexual dysfunction related to the hypoestrogenic state.

GSM is usually secondary to postmenopausal estrogen loss; cancer treatments can also cause it, such as chemotherapy, radiation, and systemic endocrine therapy (e.g., tamoxifen), which cause ovarian hormonal suppression.

GSM can clinically be detected in up to 90% of postmenopausal women undergoing evaluation and affects the QOL.

Women do not complain about it; leading questions need to be asked during history taking.

Unlike VMSs, symptoms of GSM do not resolve over time, are chronic, and can become progressively worse without treatment.

Presentation

A woman may present with vulval and vaginal dryness, burning sensation, irritation, pruritus vulvae, urinary urgency, recurrent urinary tract infections, dyspareunia, and sexual dysfunction.

On examination

Figure 4 depicts normal and atrophic vagina

- Physical signs of vulvovaginal atrophy (reduced vulval fat, reduced vaginal rugae, and pale appearance)
- Vaginal pH changes from the normal moderately

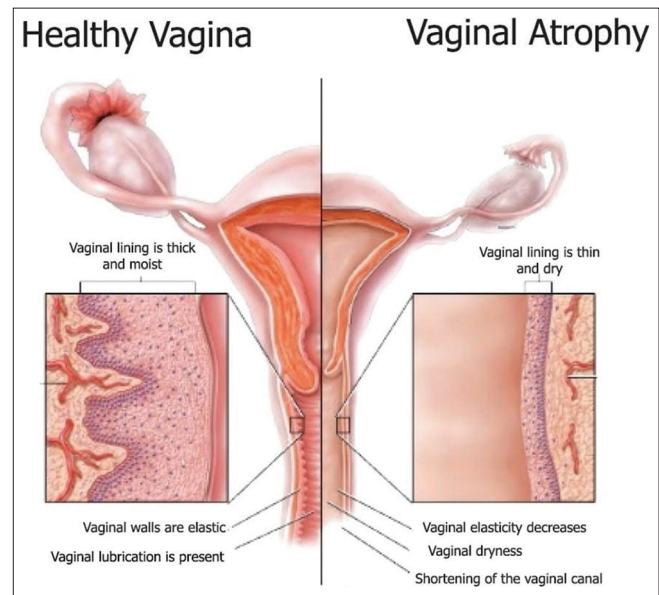


Figure 4: Healthy and atrophic vagina

acidic range (pH 3.5–5.0) to a neutral range (pH 6.0–8.0) or alkaline pH.

Risk factors for worsened genitourinary symptoms

- Menopause
- Bilateral oophorectomy
- Decreased frequency and sexual abstinence
- Ovarian failure
- Lack of exercise.

Physical changes

The body form changes from gynecoid to android form due to increased central abdominal fat, even without increasing total body weight.

- Joint and muscle: Muscle aches, joint pains, and osteoarthritis are common in menopause
- Skin: Dryness and thinning; acne may appear. Sun exposure and the use of tobacco increase the onset of wrinkles
- Hair: Thinning of the scalp, especially frontal area and pubic hair, increases facial hair.
- Teeth: May have reduced salivation and gingivitis.

Long-term effects of menopause

Cardiovascular disease

- Cardiovascular diseases (CVDs) include coronary heart disease (CHD, angina, and myocardial infarction), stroke, and VTE and are the leading causes of mortality in women after menopause
- The incidence of CVD increases with age in women and men
- In women, decreasing estrogen levels at menopause add a risk factor for CVD. Thus, menopause may be considered a biological marker for CVD in women
- Women with POI, especially those with surgical oophorectomy, have an increased risk of CHD
- During the MT, due to estrogen deficiency, there is an increase in triglycerides and low-density lipoproteins and a decrease in high-density lipoproteins
- It is crucial that the primary healthcare provider understands the risk factors for CVD and institutes timely primary intervention programs and works with the physicians/cardiologists to prevent the life-threatening sequelae of CVD
- Assessment of cardiovascular risk is necessary before starting MHT. Risk factors for CVD are mentioned in the next module.

Skeletomuscular effects of menopause

These include osteoporosis, sarcopenia, and frailty.

Osteoporosis

What is osteoporosis?

- Osteoporosis is “a systemic skeletal disease characterized by low bone mass (measured as bone mineral density [BMD]) and microarchitectural deterioration of bone tissue with a consequent increase in bone fragility and susceptibility to fracture.”

Why does osteoporosis happen?

- Bones constantly change through life, breaking down (resorption) and renewing (formation). Osteoporosis happens when resorption occurs more quickly than formation, leading to loss of bone strength and density. The bones become fragile and fracture more easily
- In adolescence, the formation of bone is more than resorption, and in adulthood, the formation is equal to the resorption of the bone. Here, an individual achieves the peak bone mass. Peak bone mass is influenced by several modifiable and nonmodifiable factors, including race, heredity, diet, exercise, alcohol consumption, smoking, diseases, medications, and hormones. Refer to Module 3
- With aging, the resorption of the bone is more than formation, and bone loss starts between 35 and 40 years of age among both sexes
- In addition, in women, bone loss accelerates in the decade following menopause. Women lose 35%–50% of the trabecular bone (vertebrae, hip, and end of long bones) and 25%–30% of the cortical bone (shaft of long bones), while men lose 15%–45% of the trabecular bone and 5%–15% of the cortical bone. All this can lead to postmenopausal osteopenia and osteoporosis
- Throughout the lifespan, secondary factors may deplete bone mass and precipitate osteoporosis.

What is the presentation of osteoporosis?

- Osteoporosis is an asymptomatic silent disease until the occurrence of a complication, which is an osteoporotic or fragility fracture. It usually involves the wrist, spine, hip, pelvis, ribs, or humerus (WHO).

What is a fragility fracture?

- As defined by the WHO, fragility fracture is a fracture by an injury that would not fracture a normal bone. Clinically, fragility fracture occurs because minimal or no trauma even falls from a standing height or torsional movement of the spine. Common sites of fragility fractures are the hip, spine, and forearm.

What are the consequences of osteoporosis?

- Osteoporotic fractures have led to a significant increase in morbidity and mortality and an enormous financial burden. All these factors make osteoporosis a significant public health problem

- There is a loss of height, spinal curvature, significant morbidity and mortality due to hip fracture, and social and economic burden on the family
- Generally, the risks in men are about half those of women
- Osteoporotic fractures are expected to increase in both men and women (by over 3-fold over the next 50 years) because of the aging population
- Hip fractures are the most severe of these fractures and are associated with significant morbidity and mortality
- A significant collapse of one vertebral body usually leads to severe pain. In addition to repeated pain, numerous crush fractures result in loss of height and, often, in a marked kyphosis. The kyphosis, in turn, may lead to cardiopulmonary embarrassment and severely reduced exercise tolerance and functional impairment.

How to diagnose osteoporosis?

- The presence of a fragility fracture (clinical or radiological) and measurement of BMD testing by dual X-ray absorptiometry (DXA)
- According to WHO criteria, osteoporosis is a BMD that lies 2.5 standard deviations (SDs) or below the average value for young, healthy women (a T-score of <-2.5 SD)
- The WHO definition of osteoporosis applies to postmenopausal women and men aged 50 years or older [Table 3]
- The reference standard for diagnosing osteoporosis is the femoral neck BMD, total hip, and lumbar spine, which can be used for diagnosis
- Each SD reduction in BMD increased the relative fracture risk 1.5–3 times.

Sarcopenia

- The primary parameter of sarcopenia is low muscle strength
- Diagnosis is confirmed clinically by low muscle quantity or quality and low physical performance. DXA measures the quantity of appendicular muscle mass, and magnetic resonance imaging measures the

whole-body skeletal muscle mass

- Sarcopenia predisposes to frailty, physical impairment, poor QOL, and death.

Frailty

- Frailty is “a physiologic syndrome characterized by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes” (Linda Fried *et al.*, 2003)
- It is diagnosed as three or more of the following criteria: unintentional weight loss, self-reported exhaustion, weakness (grip strength), slow motor performance (walking speed), and low physical activity
- It leads to disability, dependency, and increased risk of falls and mortality. Increased risk of falls leads to fear and loss of confidence and decreases the QOL.

Refer to specialist

1. When symptoms do not respond to lifestyle management
2. Severe VMSs, neuropsychiatric symptoms
3. AUB, PMB
4. High risk for CVD, osteoporosis, sarcopenia, and frailty.

Key points

1. The immediate symptoms of menopause are hot flushes, night sweats, sleep and mood disturbances, and dyspareunia which generally resolve with time
2. The intermediate presentation of the genitourinary syndrome may worsen over time without timely treatment
3. The long-term effects of menopause and aging are on CVD and skeletomuscular health
4. Women may present to primary care physicians with menstrual problems or menopausal symptoms or request a general health checkup.

Table 3: World Health Organization definition of osteoporosis based on bone mineral density measurements by dual X-ray absorptiometry

Definition	BMD measurement	T-Score
Normal	BMD within 1 SD of the mean bone density for young adult women	T-score ≥ -1
Low bone mass (osteopenia)	BMD 1-2.5 SD below the mean for young adult women	T-score between -1 and -2.5
Osteoporosis	BMD ≥ 2.5 SD below the normal mean for young-adult women	T-score ≤ -2.5

BMD: Bone mineral density, SD: Standard deviation. Source: World Health Organization (WHO). WHO Scientific Group on the Assessment of Osteoporosis at Primary Health Care Level: Summary Meeting Report. Available from: <https://www.who.int/chp/topics/Osteoporosis.pdf>

MODULE 3: EVALUATION AT MENOPAUSE

Learning objectives

- To assess the general health status
- To elicit the relevant clinical information from the patient’s medical history, physical examination, and diagnostic investigations
- To assess various risk factors for chronic disease and cancers.

General history, clinical examination, and investigations

The aim is [Flowchart 1]:

1. To identify individual woman’s risk factors for various age-related diseases
2. To identify individual woman’s risk factors for specific menopause-related issues
3. To evaluate the need for treatment
4. To check the general condition of the woman and plan management strategies.

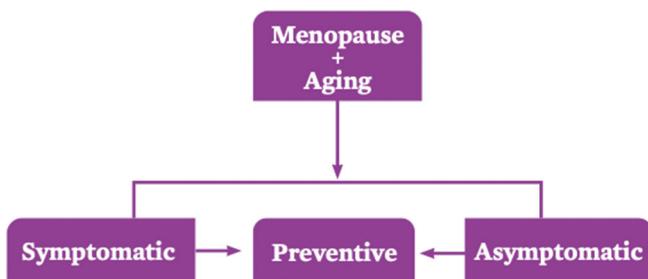
History

The information gathered should include the following areas.

Complaints

A detailed history of symptoms [Flowchart 2] related to menopause is documented in a score sheet called the menopause rating scale. The scoring system helps understand the severity of symptoms and guides evidence-based management and follow-up accordingly [Refer to Clinical Aids for Menopause Rating Scale].

- Gynecological history: Current menstrual status, age at menarche/menopause, last menstrual period, flow pattern before menopause, and contraception
- Obstetric history: Number of pregnancies, abortions, living children, lactation, postpartum depression, history of gestational diabetes, gestational hypertension
- Surgical history: Any surgery in the past gynecological or nongynecological
- Family history: Chronic disorders such as diabetes mellitus, hypertension, CVD, stroke, cancers, early



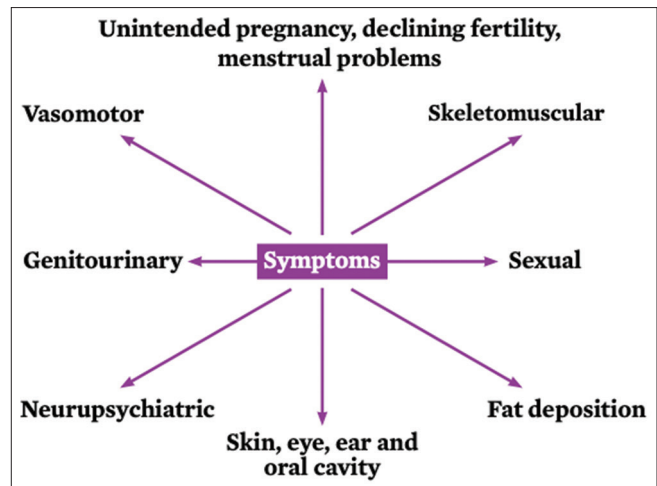
Flowchart 1: The physician’s role and approach

menopause, osteoporosis, Alzheimer’s disease, and rheumatoid arthritis

- Medical history: Same as above
- Personal history: About diet, physical activity, mental attitude, social relationship, habits, stress, mood changes, memory and concentration, caffeine use, and tobacco and alcohol consumption. Details of bowel and urinary dysfunction
- Skeletomuscular: Body and joint pains, unintentional weight loss, loss of height, low physical activity, weakness, and exhaustion
- Medication history: Current medication, use of prescription and nonprescription drugs, complementary and alternative therapies, allergies to any medication, and use of therapy to treat menopause symptoms and contraceptive methods
- Sexual history: Ask about the history of difficulty in having sexual relations and lack of sexual desire
- Weight history: Any changes in total body weight and the waist
- Immunization history: History of immunization against common infections such as hepatitis B (HEPB), *Haemophilus influenzae*, DT booster, and COVID-19.

Clinical examination

- Women may present with menstrual problems, or menopausal symptoms or request a general health checkup
- It is essential to distinguish between symptomatic and asymptomatic menopausal women
- The approach to clinical examination is directed to complete health evaluation rather than addressing issues related only to menopause. A thorough assessment of the health-related problems helps in formulating a treatment plan.



Flowchart 2: Issues in symptomatic women

An examination can be broadly divided into the following categories:

1. General physical examination

- Height (cm)
- Weight (kg)
- Body mass index (BMI) (kg/m²) (normal range - 18.5–25)
- Waist circumference (WC, cm) is used to define central obesity. Up to 80 cm is normal
- Pulse (beats/ min)
- Blood pressure (BP)
 - Optimal BP (<130/85 mmHg) to be rechecked every year
 - Normal level BP (<140/90 mmHg) to be checked more frequently
 - BP above 140/90 mmHg needs a second measurement to confirm the diagnosis of hypertension
- Conjunctiva, tongue, neck, nails, pedal edema, and varicose veins
- Auscultation of the heart and lungs.

Skeletomuscular health

Check spine curvature, gait, knee flexion, and extension. A case-finding strategy starts when a patient reports symptoms or signs of sarcopenia such as a history of falls, feeling weak, slow walking speed, difficulty rising from a chair, or unintentional weight loss. In such cases, testing for sarcopenia is recommended using SARC-F Questionnaire and assessing strength by grip strength and chair stand test. Refer to Clinical Aids.

Breast examination

This needs to be carried out regularly because of an increased risk of breast cancer as women get older. Advise self-breast examination on the same day of every month.

Abdominal examination

Any organomegaly, free fluid, hernial sites, and abnormal veins.

Pelvic examination

This is done to assess for complications of menopause, such as urogenital atrophy, a Litmus test for vaginal pH and must include a Papanicolaou (Pap) smear/liquid-based cytology (LBC)/VIA as per the availability.

Eye checkup

Intraocular pressures, refractive index, and retinal examination

Dental checkup

A dental check and hygiene needs to be reinforced.

Investigations

These are necessary to determine etiology, screen for complications, and establish a diagnosis. Some investigations may be necessary to help formulate a treatment plan [Table 4].

Laboratory tests (ideal)

Blood

- Complete blood count
- Fasting blood sugar or Hb1Ac, or 75 g oral glucose tolerance test. Refer to Clinical Aids
- Lipid profile – Refer to Clinical Aids
- Serum thyroid-stimulating hormone (TSH).

Urine

- Urine routine examination.

Stool

- Stool for occult blood.

Table 4: Tests performed solely on indication

Test	Indication
FSH	Premature ovarian insufficiency, women on contraceptive pills, women who had hysterectomy, doubt as to the cause of secondary amenorrhea or hot flushes, women on patches to rule out accumulation, fertility
Estradiol	Premature ovarian insufficiency, women on contraceptive pills, women who had hysterectomy, doubt as to the cause of secondary amenorrhea or hot flushes
Tests to assess increased risk of thrombosis	Where there is relevant past or family history, women with previous history of unexplained thromboembolic episodes antithrombin III, Tissue factor pathway inhibitor activity, protein C and protein S are to be estimated. Lupus anticoagulant, anticardiolipin antibodies should also be assessed.
Endometrial biopsy	Postmenopausal bleeding, recent irregular bleeding, previous use of unopposed estrogen in the presence of uterus
Bone mass measurement	For specific indication
LFT	When relevant as with suspected liver disease or recent history of liver disease
Urodynamic study	To diagnose and differentiate on the severity and type of Incontinence before planning surgery
ECG, 2D Echo	CVD assessment
Vaginal pH, VMI	Vaginal atrophy
25,OH vitamin D	Rule out secondary causes of osteoporosis

(FSH: Follicle-stimulating hormone; OCPs: Oral contraceptive pills; LFT: Liver function tests; ECG: Electrocardiogram; 2D Echo: Twodimensional echocardiography; CVD: Cardiovascular disease, 25, OH vitamin D: 25, hydroxy vitamin D, VMI: Vaginal saturation index).

Investigations to rule secondary cause of osteoporosis

- Complete blood picture, erythrocyte sedimentation rate (ESR)
- Random blood sugar
- Serum calcium
- Preferably fasting serum phosphorus
- Serum creatinine
- Serum albumin
- Alkaline phosphatase
- Serum TSH
- 25-hydroxy-vitamin D
- X-ray of thoracolumbar spine (lateral view)
- Parathyroid hormone (PTH) (based on clinical judgment).

Risk assessment for chronic diseases [Table 5]

When to refer

- Severe symptoms of menopause

Table 5: Risk assessment for chronic diseases

Diseases	Risk factors		Screening Method
	Modifiable	Nonmodifiable	
Osteoporosis	Low BMI (≤ 20)	Female sex	FRAX Tool: It integrates clinical factors and bone mineral density at femoral neck* The models are available at www.shef.ac.uk/FRAX OSTA: It estimates risk of fractures based on age and weight*
	Malnutrition	Advanced age	
	Nutritional deficiency	Family history of osteoporosis	
	Physical inactivity	History of osteoporotic fracture	
	Prolonged immobilization	Diseases and disorders	
	Vitamin D deficiency	hypo gonadal status,	
	Estrogen deficiency	Endocrine disorders	
	Smoking	Cushing's disease, malabsorption syndrome, renal	
Sarcopenia	Resistance exercise	Age	SARC-F questionnaire; screening tool to rapidly diagnose sarcopenia*
	Physical activity, nutrition	Medications	
		Chronic disease	
Coronary heart disease	Diabetes	Age >55 years	WHO risk prediction charts*
	Hypertension	Premature menopause family history of CHD	
	Obesity		
	Smoking		
Diabetes mellitus	Hyperlipidemia (high LDL, low LDL, elevated TG)	Family history	FBS, HbA1c, 2 h 75 g oral glucose oral challenge test*
	Physical inactivity	Advancing age	
	Obesity	Personal history of gestational diabetes mellitus or impaired glucose tolerance	
Thyroid dysfunction	Polycystic ovary syndrome	Family history of thyroid disease	Serum TSH
		Prior thyroid dysfunction	
		Hyperthyroidism	
Alzheimer's disease	Physical inactivity	Autoimmune disorder	Criteria for probable AD Dementia of insidious onset Progression of symptoms No disturbance of consciousness Absence of other systemic or brain diseases that produce cognitive and behavioral change Early signs of dementia include memory problems, particularly recent events, confusion, reduced concentration and personality changes
	Diabetes	Age >65	
	Hypertension	Female	
	Dyslipidemia	Family history: First degree	
	Smoking	Genetic factor: APOE-4	
	Obesity	MCI	
	Depression	Auto-immune diseases	
	Stress and social engagement	Head trauma	
Diet	Traumatic brain injury		
Deep vein thrombosis	Prolonged immobilization	Personal or family history	Activated partial thromboplastic time, prothrombin time, antithrombin, protein C and S, factor V Leiden, lupus anticoagulant and anti-cardiolipin antibodies
	Oral contraceptive pills	History of treatment with anticoagulants	

*Refer to clinical aids. FRAX: Fracture risk assessment, OSTA: Osteoporosis Self-Assessment Tool for Asians, BMI: Body mass index, APOE-4: Apolipoprotein E-4, MCI: Minimal cognitive impairment, WHO: World Health Organization, LDL: low-density lipoprotein, HBA1c: hemoglobin A1c, TSH: Thyroid Stimulating Hormone, AD: Alzheimer's disease, TG: Triglycerides, CHD: Coronary heart disease

- Diagnosis of medical disorders on routine evaluation
- Eye, ear, and dental checkup as per need

Key messages

1. Women may present with menstrual problems, menopausal symptoms, or request for a general health checkup
2. The approach to clinical examination should be directed to complete health evaluation rather than addressing issues related only to menopause
3. A thorough assessment of the health-related problems helps in formulating treatment plan
4. It is most important to distinguish between symptomatic and asymptomatic menopausal women.

Module screening for cancers

Learning objective

- To understand the importance of opportunistic screening.

Cancer breast

Types of breast cancer

- Ductal carcinoma (arising from the epithelium of the ducts) constitutes 85% and glandular (arising from the glandular lobules) about 15% of the breast cancer cases.

Family history of breast cancer

- The personal risk of breast cancer is marginally increased if a single relative develops breast cancer after menopause. The risk doubles if two first-degree relatives develop breast cancer after 50 years or a single relative develops breast cancer before age 50. The risk quadruples in women with two first-degree relatives are affected before age 50; they should be offered genetic testing.

Screening for breast cancer

- A primary strategy for reducing breast cancer mortality is to detect it at an early stage or preclinical stage. Practical and simple treatment is available for the early stages of breast cancer
- In advanced cases, survival rates fall dramatically regardless of the setting. In poor-resource countries, women present at a late stage due to the absence of screening strategies
- The debate about the importance of screening continues. There are no universal evidence-based guidelines for breast cancer screening at present
- In developing countries, screening is an “opportunistic screening”
- According to the WHO, low-cost screening approaches, such as clinical breast examination

(understanding the feel of the normal breast, reporting at the earliest in case of nipple discharge, lump, changes in the skin of the breast) could be implemented in limited-resource settings

- Breast cancer control as a part of the national cancer control programs and integrated into NCD prevention and control is the agenda of the WHO.

The screening methods are:

Breast cancer screening includes three methods of early detection. Refer to Clinical Aids.

- 1 Breast self-examination (BSE) monthly starting in the 20s
- 2 Clinical breast examinations (CBE) every 1–3 years starting in the 20s till 39 and annually after that
- 3 Screening by mammography should start at 40 years (annually)

Breast cancer prevention

- The Global Breast Cancer Initiative was introduced on March 8, 2021 (International Women’s Day) by the WHO to reduce global breast cancer mortality by 2.5% per year until 2040, averting about 2.5 million deaths
- The global initiative is based on interventions as three pillars: health promotion, timely diagnosis, and comprehensive treatment and supportive care
- The first pillar, health promotion, includes public education on the signs and symptoms of breast cancer and advice on reducing the risk by tackling obesity, encouraging breastfeeding, and limiting alcohol intake
- Primary care physicians and health workers are trained in the early detection of breast cancer. An early breast cancer diagnosis reduces delays between the time a patient first visits the health personnel and the initiation of breast cancer treatment. Essential diagnostic services are workable in all settings, so long as they are well organized and lead to a timely referral for specialist care
- Comprehensive breast cancer treatment should include access to surgery, chemotherapy and radiotherapy, and rehabilitation support for women following treatment and palliative services to reduce pain and discomfort.

Cancer cervix

- Screening women in the target age group can prevent most cervical cancers, followed by treatment of detected precancerous lesions
- After menopause, the vagina and cervix undergo atrophic change and affect the quality and adequacy of smears taken
- The basal and parabasal cells being present at the surface may lead to misleading results of dysplasia

- It is advisable to take a smear in cases of vulvovaginal atrophy after a short course of local estrogen therapy. This has a beneficial effect on the vaginal and cervical epithelium and enables a more adequate and accurate interpretation of the sample
- WHO recommends starting cervical cancer screening at the age of 30 years
- After age 50, the WHO suggests stopping screening after two consecutive negative screening results consistent with the recommended regular screening intervals
- When tools are available to manage postmenopausal women, women aged 50–65 years who have never been screened should be prioritized
- Where HPV DNA testing is not yet operational, the WHO suggests a regular screening interval of every 3 years when using VIA or cytology as a primary screening test
- The WHO suggests a regular screening interval every 5 or 10 years when using HPV DNA detection as a primary screening test
- While transitioning to a program with a recommended regular screening interval, screening even twice in a lifetime is beneficial
- VIA and ablation treatments are not suitable for screening women in whom the transformation zone is not visible. Inadequate visualization is typical after menopause.

Cancer endometrium

- Screening for EC is not indicated for women with no identified risk factors
- Women at average risk of EC should be informed about the symptoms and signs and report any unexpected bleeding or spotting
- Women with increased risk and special situations such as MHT, genetic risk, and tamoxifen therapy are recommended for a complete diagnostic evaluation for abnormal bleeding.

Cancer ovary

A heightened awareness of the symptoms of early ovarian cancers on the parts of the patients and practitioners may help reduce the delay in diagnosis and hopefully improve the outcome of some progress. There are no screening protocols.

If any of the unusual symptoms listed below lasting for more than 2 weeks, advise an ultrasound of the abdomen and pelvis.

- Abdominal bloating, indigestion, or nausea
- Changes in appetite, pressure in the pelvis or lower back
- Frequency and/or urgency to urinate and constipation
- Changes in bowel movements

- Increased abdominal girth
- Tiredness or low energy.

When to refer

1. Breast lump or discharge from nipple/abnormal sonomamogram and mammogram
2. Abnormal cervical cancer screening test report
3. PMB
4. Abdominal bloating, indigestion or nausea, changes in appetite, and pressure in the pelvis or lower back lasting for more than 2 weeks.

Key messages

1. Promote SBE and CBE
2. After age 50, the WHO suggests stopping cervical screening after two consecutive negative screening results consistent with the recommended regular screening intervals
3. While transitioning to a program with a recommended regular screening interval, screening even twice in a lifetime is beneficial for cervical cancer
4. Screening for EC is not indicated for women with no identifiable risk factors
5. Increased awareness of the symptoms of early ovarian cancers may help reduce the delay in diagnosis and hopefully improve survival rates
6. For the general population, annual pelvic examination and screening tests as guidelines are recommended as a part of postmenopausal surveillance.

Premature ovarian insufficiency

Learning objectives

- To identify, define, and understand the risks of POI
- To manage and monitor POI.

Definition

Loss of ovarian hormonal function leading to menopause in women before the age of 40 years is called POI.

- Premature ovarian failure or POI – If it happens spontaneously.
- Induced or iatrogenic menopause following
- Chemotherapy and radiotherapy
- Bilateral oophorectomy or surgical menopause
- Following hysterectomy, women have cessation of ovarian function 4 years earlier than natural expected course.

Diagnosis

Clinical syndrome is characterized by

- Age <40 years
- Changes in menstrual pattern: irregularity ≥ 4 months of scanty periods or no periods
- There is no withdrawal with hormones, and the other signals are inability to get pregnant and symptoms of

menopause

- In any woman under 45 years of age, menstrual irregularity lasting longer than 3 months should be investigated for early menopause.
- FSH in the menopausal range >25 IU/L on two occasions ≥ 1 month apart

Natural pregnancy with premature ovarian insufficiency

50% of these women experience infrequent ovulation after diagnosis, and 5%–10% may achieve spontaneous pregnancies.

Effects of premature ovarian insufficiency

Immediate

VMSs, infertility, impaired cognitive function, genitourinary syndrome, and decrease in QOL.

Long-term effects

Osteoporosis

Women with untreated POI are at increased risk of developing osteoporosis, and fracture risks are 1.5–3-fold more than the risk of fracture in women attaining menopause at the average age.

Measurement of BMD at initial diagnosis of POI should be considered for all women.

There is an increased risk of other conditions, including CVD and mortality, type 2 diabetes mellitus, genitourinary syndrome, dementia, cognitive decline, and overall mortality.

Management

Healthy lifestyle helps in managing menopausal symptoms, prevents CVD, and protects bone and muscle [Table 6].

Vasomotor symptoms

- The mainstay of treatment is complete replacement hormone therapy (HRT). It should be started as early as possible after the diagnosis is confirmed and continued until the age of natural menopause
- HT is not a contraceptive method [Table 6]
- No evidence shows that estrogen replacement increases the risk of breast cancer to a level more significant than that found in normally menstruating

women, and women with POI do not need to start mammographic screening early

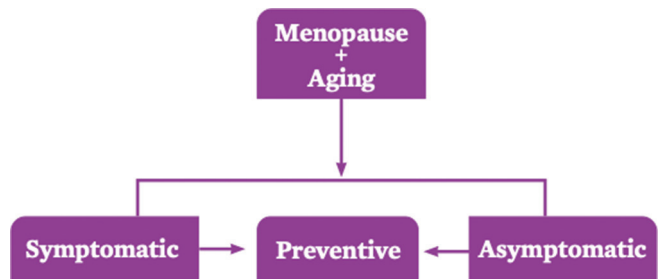
- HT in POI is a long-term therapy, and hence, it is recommended that the dose of HT is kept as physiological as possible.
- Progesterone must be added to avoid the unopposed effects of estrogen on the endometrium in a woman with a uterus. Levonorgestrel intrauterine system has the advantage of avoiding the adverse systemic effects of oral progestins
- The flowchart of management is given in Chapter “Hormonal Therapy”
- Using combined hormonal contraceptives is acceptable. There are no head-to-head trials comparing the use of HRT versus combined hormonal contraceptives in POI
- Guidelines and data show the preferential use of MHT if contraception is not needed based on the theory of minimum effective dose for any ailment
- If HT is contraindicated, options for management are gabapentin, SSRI and serotonin and SNRIs.

Genitourinary syndrome

Regular sexual activity helps maintain vaginal health, vaginal moisturizers and lubricants, and topical low-dose estrogens.

Monitoring

Women with POI using HRT should have a clinical review annually, paying particular attention to compliance. No routine monitoring tests are required but may be prompted by specific symptoms or concerns.



Flowchart 3: The physician’s role and approach

Table 6: Management of premature ovarian insufficiency

Endocrine health/bone health/CVD	Genetic health	Emotional health	Reproductive health options (if childbearing desired)
Full replacement HT, calcium supplementation, Vitamin D Supplementation, weight-bearing exercises healthy lifestyle Other pharmacological treatments, including a bisphosphonate, should be considered with advice from an osteoporosis specialist	Genetic counseling Medical geneticist consultation	Be considerate when revealing diagnosis Assess support network Suggest alternative outlet for emotional turmoil Counseling	Opt out of parenthood Foster care Adoption Donor egg Donor embryo

Measures to prevent premature ovarian insufficiency

Given the long-term health consequences of POI, efforts should be made to reduce the incidence.

Modifiable factors may include:

- Gynecological surgical practice - There is a great need for an awareness program about the consequence of surgical menopause risk/benefits and the prevention of problems due to surgical menopause
- Lifestyle - Prevention of smoking, use of tobacco, optimal weight
- Modified treatment regimens for malignant and chronic diseases.

When to refer

For treatment of POI.

Key messages

1. Loss of ovarian hormonal function leading to menopause in women before 40 years of age is called POI.
2. They may present with the VMSs, genitourinary syndrome, infertility, and decreased QOL
3. Women with untreated POI are at increased risk of developing osteoporosis, cardiovascular mortality, and overall mortality
4. Early menopause is associated with an increased risk of developing type 2 diabetes
5. Management includes hormone replacement therapy unless contraindicated.

Obesity at menopause**Learning objective**

- To understand the definition and sequelae of obesity at menopause
- To understand the management of obesity.

The WHO considers obesity the most significant global chronic health problem in adults, increasingly becoming a more severe problem than malnutrition.

Definition

Obesity is an abnormal or excessive fat accumulation that may impair health.

Menopause and obesity

- Women around menopause gain on an average of 0.55 kg (>1 lb) per year
- Association of weight gain around menopause is linked more with lifestyle and aging
- The menopausal transition
- Estrogen promotes the accumulation of gluteofemoral fat (gynecoid or pear shape). Estrogen decline with menopause is associated with an increase in fat centrally, as intra-abdominal fat (android or apple shape) is independent of the effect of age and total body fat
- Android obesity has emerged as a cardiovascular risk

factor independent of overall obesity

- A healthy lifestyle helps at any age but is even more critical around menopause.

Benefits of maintaining a healthy weight and waist circumference at menopause

- The risk for following NCDs increases with a rise in BMI and visceral obesity
- Obesity may precipitate more severe menopausal symptoms. Losing weight helps improve symptoms
- CVDs (heart disease, stroke, VTE), type 2 diabetes, nonalcoholic fatty liver disease, nonalcoholic steatohepatitis, sleep apnea, osteoarthritis, gastroesophageal reflux, incontinence, intertrigo, thrombosis
- Cancers such as endometrial, breast, ovarian, prostate, liver, gallbladder, kidney, and colon
- Depression, low self-esteem, cognitive impairment
- Weight loss of 5%–10% and reducing abdominal fat by maintaining a healthy weight can decrease the risk of these diseases.

Diagnosis of obesity

Obesity is measured by a scale, BMI, abdominal obesity by WC and waist-hip ratio.

Measuring body mass index

BMI is derived by dividing a person's weight in kilograms by their height in meters squared and expressed as kg/m².

Measuring waist circumference and waist-hip ratio

- The WHO STEP-wise approach to surveillance (STEPS) protocol for measuring WC
- The WC is measured at the end of several consecutive natural breaths parallel to the floor. The level is at the midpoint between the top of the iliac crest and the lower margin of the last palpable rib in the midaxillary line
- Measure the hip circumference at a level parallel to the floor, at the largest circumference of the buttocks
- Make both measurements with stretch-resistant tape wrapped snugly around the subject but not to the point that the tape is constricting. At the point of measurement, keep the tape level and parallel to the floor at
- Ensure that the subject is standing upright during the measurement, with arms relaxed at the side, feet evenly spread apart, and body weight evenly distributed
- The WC and BMI are used as more sensitive indicators of disease risks
- Based on BMI and WC, a staging system is used to assess risk and plan management [Tables 7-9]

Key messages

1. Obesity is closely related to several other chronic

Table 7: Classification of obesity based on body mass index - World Health Organization/Indian BMI in kg/m² category and management

Category	WHO	Indian
Underweight	<18.5	<18
Healthy	18.5-24.9	18.0-22.9
Overweight	25.0-29.9	23.0-24.9
Obese Grade I	>30.0-34.9	>25
Obesity Grade II	35.0-39.9	
Obese Grade III	≥40	

BMI: Body mass index, WHO: World Health Organization

Table 8: Abdominal obesity based on waist circumference

WHO	Indian
>80 cm	>72 cm
>88 cm	>80 cm

WHO: World Health Organization

Table 9: Abdominal obesity based on waist-hip ratio

Gender	Waist -hip ratio
Female	0.85

diseases, including heart disease, hypertension, type 2 diabetes, sleep apnea, certain cancers, and joint diseases

- Menopause does not cause obesity; it increases the abdominal fat predisposing to metabolic syndrome
- A healthy diet and physical activity are essential to prevent obesity.

MODULE 4: MANAGEMENT OF MENOPAUSE

Learning objective

- To understand the management options
- Lifestyle modification for health promotion, disease prevention, and disability postponement.
- MHT
- Nonhormonal options in women not willing or suitable for MHT

Management of menopause

The management depends upon the symptoms, comorbidities, lifestyle, socioeconomic status, and acceptance.

In symptomatic and asymptomatic women, prevention of disease should be emphasized [Flowchart 3].

Classifying the woman into two groups based on symptoms helps in planning an individualized management:

- Group 1: Women without menopausal symptoms [Table 10]
- Group 2: Women with menopausal symptoms

[Table 11].

Management options

- Therapeutic lifestyle management is universal for preventive healthcare and never too early nor too late to enforce for an asymptomatic or symptomatic woman
- For women with symptoms, treatment options fall into three categories:
 - MHT
 - Nonhormonal prescription treatments
 - Complementary therapies.

Therapeutic lifestyle management

Learning objectives

- To understand the importance of maintaining an ideal weight
- To understand nutrition, physical activity, exercise, and sleep
- To understand the use of calcium and Vitamin D
- Adult vaccination.

Menopause transition - "Window of opportunity"

- A healthy lifestyle during the MT is associated with decreased NCDs, thus promoting healthy aging and preventing disability
- Counselling on controlling modifiable major risk factors such as the harmful use of tobacco, alcohol consumption, obesity, unhealthy diet and physical inactivity is needed.
- The interventions that lower NCD risk factors can reduce premature deaths by half to two-thirds
- Secondary prevention through healthy living retards the progression of existing chronic diseases and decreases mortality.

Therapeutic lifestyle management includes counseling regarding:

- Dietary pattern
- Physical activity and exercise
- Avoid the use of tobacco, gutka, paan, alcohol, and recreational drugs
- Positive thinking, stress management, relaxation technique
- Sleep hygiene.

General tips on nutrition

- Diet should be balanced and nutritious and follow the food-based dietary guidance of their countries [Figure 5]
- There should be a balance between energy intake (calories) with energy expenditure
- Fat content should not be over 30% of total energy intake; saturated fats should be less than 10%, and trans fats should not be less than 1% of total energy intake

Table 10: Women with no menopausal symptoms

a	Healthy, no VMS	Institute preventive care
b	Healthy with risk factors for disease, no VMS	Institute preventive health care
c	Women with latent disease, no VMS	Institute preventive health care, treat the disease
d	Women with comorbidities, no VMS	Institute preventive health care, treat the disease

Table 11: Women with menopausal symptoms

a	Healthy with VMS	Institute preventive health care, treat with MHT
b	Healthy with risk factors for disease, with VMS	Institute preventive health care, risk benefit analysis before therapeutic intervention
c	Women with latent disease, with VMS	Institute preventive health care, risk-benefit analysis before therapeutic intervention
d	Women with comorbidities, with VMS	Institute preventive health care, treat the disease, risk-benefit analysis before therapeutic intervention

- Intake of free sugars is limited to less than 10% or preferably 5% of total energy intake for additional health benefits. Limit consumption of free sugars, which only have empty calories
- Have about 100 g of fruits and 300 g of vegetables. Prefer whole fruits rather than juices
- Include whole grains, beans, and lentils daily
- Certain foods with antioxidants (green, yellow, and orange vegetables and fruits, such as carrots, sweet potatoes, spinach, tomato, and orange) are recommended
- Eat 1–3 servings per week of oily fish like salmon and mackerel.
- Foods rich in phytoestrogen include lentils, kidney beans, bengal gram and soybean.
- Snack on four nuts like almonds, walnuts or and seeds like pumpkin, sunflower, sesame
- Use mixed protein; adequate intake would be about 1 g/kg/day.
- Consume 500–600 ml of milk or curds (low fat) for bone health, and support it with lots of vitamin C-rich fruits/vegetables to favour calcium absorption.
- Use iodised salt, and overall intake should be less than 1 tsp per day, i.e. 3–5 g (2 g of sodium)
- Drink eight glasses of water every day.



Figure 5: Food plate



Figure 6: Global recommendations: Physical activity in middle-aged and older adults (50+ years of age)

To avoid

- Excess caffeine (coffee, tea, and soft drinks)
- Processed, canned, frozen, and packed foods, soups, and salted nuts

Each component represents proportion: about half for vegetables, about one quarter for protein-rich food (meat, fish, cheese, and legumes), and the last quarter for starchy food, including cereals and grains. Fruits are shown on the periphery of the plate because they can be eaten between meals (apples, berries). (From diet: <http://nutrition-sante.ch/l-assiette-equilibree>).

Calcium

- Calcium is an essential component of bone mass. It affects the cardiovascular system, nervous system, and muscles as well
- Calcium supplementation up to 1000 mg/day reduces bone loss and decreases fractures in individuals with low calcium intake
- Premenopausal women need 1000 mg of calcium, while postmenopausal women should consume 1200 mg

- Limit calcium intake to 500 mg at one time from food and/or supplement
- Calcium absorption is decreased with smoking, caffeine, stress, and when taken with foods rich in fibers and fat, iron, zinc, spinach, coffee, alcohol, and antacids
- High salt intake is linked with an increase in urinary calcium loss
- Lack of dietary nutrients also reduces calcium absorption, especially Vitamins C, D, and K, and minerals such as magnesium and phosphorus
- Drugs such as thyroid medications, corticosteroids, tetracycline, and anticonvulsants should be taken separately from calcium
- Encourage calcium intake from dietary sources. Dietary Sources of Calcium - Refer to Clinical Aids.

Vitamin D

- Along with calcium, Vitamin D decreases bone loss, prevents falls, and lowers fracture risk
- For effective calcium absorption, an adequate amount of Vitamin D must be present
- Above 50 years and older, women need 800–1000 IU daily
- Vitamin D is typically synthesized in the skin by exposure to UV rays of sunlight
- At least 15%–30% of body surface area needs to be exposed (face, neck, arms, and forearms) without sunscreen for at least 15–30 min, depending on the season, latitude, altitude, pollution, and skin pigmentation
- Dietary sources are limited to fatty fishes such as wild-caught mackerel, salmon, and tuna
- When it is not possible to get Vitamin D from the sun or diet, it is recommended to use Vitamin D as a supplement.

Management of deficiency

- Cholecalciferol (Vitamin D3), 60,000 IU/orally once a week for 8 weeks, preferably with milk.

This is followed by maintenance therapy.

Maintenance therapy

- Vitamin D supplements of 1000–2000 IU/day.

Upper acceptable limit

The dose for treatment should not exceed 4000 IU/day, and hypercalcemia has been reported when the dose exceeds 10,000 IU/day.

Vitamin D derivatives

Calcitriol, the active form of Vitamin D, is reserved only for chronic renal and hepatic disease patients.

Addictions

- Tobacco is linked with early menopause up to 2 years earlier, more likely to develop VMSs, osteoporosis, and increased atherosclerosis in the coronary arteries
- Alcohol: Pure alcohol of more than three units (30 ml) precipitates VMSs at menopause and can increase the risk of breast cancer.

It raises BP and increases the risk of heart disease and stroke, osteoporosis, depression, stress, dementia—difficulty sleeping and relationship problems.

Stress management, relaxation technique

Mental and emotional well-being may be maintained by being a learner, pursuing a hobby, continuing work, reading, conversing, meditating, spirituality, bonding with family and friends, and participating in social activity.

Sleep hygiene

- Getting to bed and getting up at the same time each day
- Sleep in the dark, quiet room at a comfortable temperature
- Avoid large meals, exercise, caffeine, nicotine, gadgets, television, and liquid 2 h before sleep
- Maintain a dim light bedroom environment with no gadgets around
- Avoid disturbing thoughts or problems, meditate, and keep the mind peaceful
- Mind–body therapies such as yoga and tai chi may be tried
- In resistant cases, short-term melatonin agonists and

Table 12: Nonhormonal therapy

Medication	Dosage	Common adverse effects
SSRIs and SNRIs		
Paroxetine (SSRI)	10-20 mg/day	Nausea, drowsiness, sexual dysfunction*
Fluoxetine (SSRI)	10-20 mg/day	Nausea, drowsiness, sexual dysfunction*
Venlafaxine (SNRI)	3.75-150 mg/day	Nausea, drowsiness, sexual dysfunction*
Desvenlafaxine (SNRI)	25-150 mg/day	Nausea, drowsiness, sexual dysfunction*
Anticonvulsant		
Gabapentin	100 mg at night, increase to 300 mg three times per day	Dizziness, drowsiness
Pregabalin	75 mg at night, increase to 150 mg twice daily	Dizziness, drowsiness, nausea, headache

SSRIs: Selective serotonin reuptake inhibitors, SNRIs: Serotonin-norepinephrine reuptake inhibitor

benzodiazepines may be given before referring to a psychiatrist.

Physical activity and exercise

Physical activity is any bodily movement produced by the muscles [Figure 6].

Exercise is a type of physical activity planned, structured, repetitive, and purposeful to improve or maintain some component of fitness or health.

Both are important for health.

Exercise should include aerobic, strength/weight-bearing, flexibility, breathing, and balance.

30 min or bouts of at least 10 min duration of moderate-intensity physical activity should be included mostly 5 days a week.

Muscle-strengthening activities should be included at least 2 days/per week.

Duration of exercise depends on the aim of fitness to be achieved:

- 30 minutes/day – For fitness and reduced risk of chronic disease
- 60 minutes/day – For prevention of weight gain
- 60–90 minutes/day – To avoid the gain of weight

Table 13: Nonhormonal management of symptoms

	Gabapentin or pregabalin	SSRI or SNRI	CBT or hypnosis
VMS*	++	++	+
Sleep	+++	+/-	
Mood		+++	

VMS: Vasomotor symptom, SSRIs: Selective serotonin reuptake inhibitors, CBT: Cognitive behavioural therapy, SNRIs: Serotonin-norepinephrine reuptake inhibitor

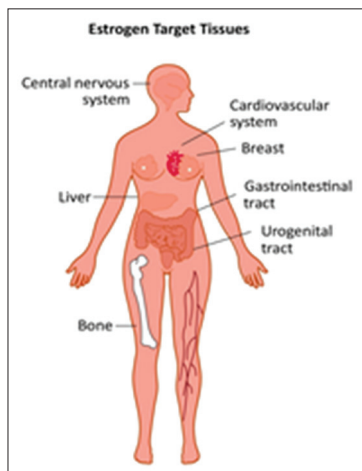


Figure 7: Estrogen target tissues

Types of exercises

It is recommended to be on an empty stomach at least 2 h before exercise.

1. Warm-up and cool-down include gentle stretching and flexibility exercises performed for 5 10 min before and after aerobics and strength training exercises
2. Aerobics improves cardiovascular fitness by increasing the capacity to use oxygen by walking, running, and cycling
3. Strength training/resistance training /weight-bearing – to build strength and size of the muscle and bone. Strength training utilizes machines, dumbbells, and ankle or wrist weights. Weight-bearing exercises include tai chi and dancing
4. Stretching – a specific muscle group is stretched out to improve muscle and joint elasticity and flexibility
5. Breathing exercises – to increase the oxygen-carrying capacity and recharge the mind, body, and distress
6. Balance exercise – to maintain correct posture and balance
7. Kegel exercise – to maintain pelvic floor strength.

Healthy women can probably undertake such a program without medical screening. Those who have any medical problems or symptoms (e.g., chest pain, dyspnea, syncope) should be evaluated thoroughly for fitness before beginning the exercises.

Avoid high-impact activities or those that require sudden, forceful movements, and forward bending in case of osteoporosis.

Immunization in adults

Learning objectives

To know the adult vaccination schedule.

- Vaccination in an adult could pave the way to preventing many infective pathologies. There are no

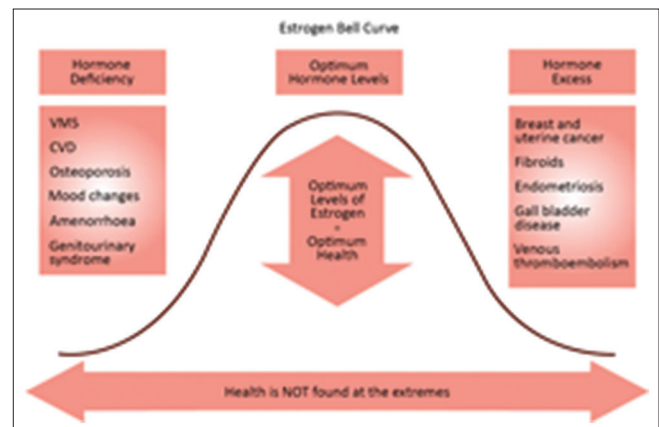


Figure 8: Estrogen bell curve

national guidelines for adult vaccination in India

- Adult vaccination could help reduce morbidity and mortality from VPDs
- Natural immunity reduces over time in older adults, and comorbidities such as chronic cardiac, pulmonary, or metabolic diseases make them more susceptible to VPDs.

Some VPDs in older adults can be severe, resulting in high morbidity and mortality rates.

Hepatitis B

- Indications/comments: Vaccination is indicated for all unvaccinated adults at risk for HEPB virus (HBV) infection and all adults seeking protection from HBV infection, including postexposure prophylaxis
- Dosage/administration: Three doses (1 ml each) intramuscularly on a 0, 1, and 6 months schedule.

Influenza

- It is indicated for every patient over age 65 years, 1 pregnant women, and women with immunocompromised sickle cell disease, chronic renal disease, CSF leak syndrome, cochlear implants, chronic lung or cardiac illness, asthma, a history of smoking, or chronic metabolic

Herpes zoster vaccine

- Indications/comments: A single dose of the zoster vaccine is recommended for adults aged 50 years and older regardless of whether they report a prior episode of herpes zoster
- Dose: 0.65-ml dose subcutaneously in the deltoid region of the upper arm.

Diphtheria, tetanus, and acellular pertussis 31 vaccine

- Indications/comments: Adults who have completed their primary vaccination series should receive tetanus (TD) vaccine every ten years till the age of 65 years; In unvaccinated individuals, one dose of diphtheria, TD, and acellular pertussis 31 vaccine may be administered
- Dose: 0.5 ml intramuscularly once.

Polysaccharide pneumococcal vaccine

- Indications/comments: Polysaccharide pneumococcal vaccine 23 is indicated for adults over age 65 years and adults under age 65 years who are at risk
- Dosage/administration: 0.5 ml given intramuscularly as 2 doses 5 years apart.

COVID

- Indications/comments: Indicated for all adults as per the current schedule. The time interval between two doses of the Covishield vaccine has been extended from 4–8 weeks to 12–16 weeks. The second dose of Covaxin can be taken 4–6 weeks after the first.

Vaccines recommended for all healthy adults

- Diphtheria, pertussis, and tetanus
- Measles, Mumps, and Rubella
- Influenza (>50 years)
- Pneumococcal (>65 years)
- Zoster (>60 years).

Vaccines recommended in At-Risk individuals

- Hepatitis B
- Hepatitis A
- Meningococcal
- Varicella
- HiB
- Typhoid
- Rabies.

Cholera and Japanese encephalitis vaccines are routinely not indicated due to a lack of adequate evidence.

At-risk individuals immunocompromised sickle cell disease, chronic renal disease, CSF leak syndrome, cochlear implants, chronic lung or cardiac illness, asthma, a history of smoking, or chronic metabolic disease such as diabetes.

When to refer

- When an individualized lifestyle program is needed.

Key messages

Adult vaccination could help reduce morbidity and mortality from VPDs.

Nonhormonal therapy

Learning objectives

- To understand the non-HT options.

Nonhormonal therapy

- Women with contraindications to MHT, or those who prefer not to use hormones, may choose to use nonhormonal medicines to relieve VMSs. These are not as effective as MHT
- To a lesser extent, cognitive-behavioral therapy (CBT) and clinical hypnosis have been shown to reduce VMS effectively
- CBT is a short-term, goal-oriented psychotherapy treatment that takes a hands-on, practical problem-solving approach.

Pharmacological

The pharmacological agents used are antidepressants and anticonvulsants [Table 12].

Do not prescribe paroxetine and fluoxetine to women taking tamoxifen.

Selection of medication depending on the predominant symptom [Table 13].

Complementary and alternative treatment

- Many complementary and alternative treatments are available for managing the symptoms of menopause, but scientific evidence is lacking
- Commonly studied include plant estrogens (phytoestrogens), bio-identical hormones, yoga, acupuncture, and hypnosis
- Cochrane review (2013) - No conclusive evidence shows that phytoestrogen supplements effectively reduce the frequency or severity of hot flushes and night sweats in perimenopausal or postmenopausal women, although benefits derived from concentrates genistein should be further investigated.

When to refer to a specialist

- Not responding to therapy.

Key messages

- 1 Women with contraindications to MHT, or those who prefer not to use hormones, may choose nonhormonal medicines to relieve of VMSs
- 2 These are not as effective as MHT, nor do they have other health benefits of MHT.

Hormone therapy

Learning objective

- Terminology of HT
- To understand the indications and contraindications
- To understand the use of MHT for managing symptoms of menopause
- Benefits and risks analysis
- Practical prescription of MHT
- Management of conditions related to menopause.

Hormone therapy

- The term HT covers therapies including estrogens, progestogens, combined therapies, androgens, and tibolone
- HT involves different routes of administration, different potencies, potentially different effects of each molecule, and risks and benefits differ in different individuals and the same individual at different life periods
- HT is individualized, and an effective lowest dose is prescribed. Younger women need a larger dose to maintain the benefits of estrogen, and the requirement decreases with aging.

The terminology used in HT is as follows:

- MHT
- HT—MHT and HT are interchangeable and mean the same
- HRT, when used as replacement therapy for POI
- Estrogen therapy (ET)
- Estrogen-progesterone therapy (EPT)

- Androgen therapy.
- Selective estrogen receptor modulator: Raloxifene, bazedoxifene
- Gonadomimetics: Tibolone, which has an estrogenic, progestogenic, and androgenic activity
- Oral contraceptive pills (OCPs)
- Combined contraceptive
- Progesterone-only pill.

Indications of menopause hormone therapy

- Systemic MHT is the most effective treatment for VMSs
- Vaginal estrogen therapy is the most effective option to treat the genitourinary syndrome
- Systemic MHT is indicated to manage osteoporosis within the first 10 years of menopause
- For treatment of POI, HRT is advised at least until the average age of menopause.

Types of estrogens

- The term estrogen (endogenous and exogenous) describes various related chemical compounds that have varying affinities for estrogen receptors present in the body
- The clinical effects are due to a complex process involving the estrogen receptor complex [Figure 7].
- Estrogen at an optimum level is needed to maintain estrogen-related benefits
- Deficiency or excess of estrogens can lead to problems, as depicted in Figure 8
- The critical determinant of an estrogen preparation’s usefulness is its potency and biological effectiveness
- 17 beta-estradiol, estradiol valerate, conjugated equine estrogens (CEE), estriol, and estetrol are considered natural or native estrogens
- Ethinyl estradiol is grouped under synthetic estrogens

Table 14: Dosage and types of systemic estrogen used in menopausal hormonal therapy

Estrogens	Ultra low	Low	Standard	High
CEE (mg)-oral	0.15	0.3-0.45	0.625	1.25
17β-estradiol (mg) oral	0.5	1	2	4
Estradiol valerate (mg)-oral		1	2	4

CEEs: Conjugated equine estrogens

Table 15: Types of progesterone used in menopausal hormonal therapy

Progestogens	Transformation dose with standard dose of estrogen mg per day/continuous	Transformation dose standard dose of estrogen mg per day/sequential
Progesterone	Oral-200/vaginal 100	Oral-300/vaginal 200
Dydrogesterone	5	10
Levonorgestrel	0.02	

- At menopause, the woman needs low potency, and hence, natural estrogens are preferred for menopausal HT and the potent synthetic ethinyl estradiol as an oral contraceptive.

Progesterone

The role of progesterone in MHT at menopause is to prevent the proliferation of the endometrium due to estrogen and prevent endometrial hyperplasia and EC.

Route of administration

The route of administration of estrogen depending on the woman's profile and need may be oral, transdermal, vaginal, and progesterone is given by oral, vaginal, or intrauterine placement.

Contraindications to systemic menopausal hormonal therapy

- Active or previous breast cancer, EC, and ovarian hormone-dependent cancers
- Known or suspected pregnancy
- Undiagnosed, abnormal vaginal bleeding
- Active venous thromboembolism
- Severe active liver disease with impaired or abnormal liver function
- At high risk for CVD, breast cancer
- Initiation of MHT 10 years postmenopause.

Relative contraindications to systemic menopausal hormonal therapy when transdermal is preferred

- Moderate risk for CVD
- Migraine with aura
- Previous personal or family history and at high risk of VTE.

Contraindications to local vaginal estrogen therapy

- There are no absolute contraindications
- A relative contraindication is for women with a history of breast or other estrogen-dependent cancer. It is recommended to discuss the proposed vaginal estrogen treatment with the treating oncologist.

Regimens of administering menopausal hormonal therapy

Continuous sequential/cyclic estrogen-progesterone therapy

- Estrogen is used every day, with progesterone added cyclically for 10–14 days during each month
- Uterine bleeding occurs in about 80% of women when progesterone is withdrawn, although bleeding can begin 1–2 days earlier, depending on the type and dose of the progesterone used
- In a typical continuous sequential/cyclic regimen, a progesterone is started on day 1 or day 15 each month.

Continuous combined estrogen-progesterone therapy

- Fixed doses of estrogen and progesterone are administered every day
- Approximately 40% incidence of irregular spotting or bleeding in the first 6 months.

How to choose the menopausal hormonal therapy regimens?

Perimenopausal women

- The options available are monthly sequential regimens
- Continuous combined regimens should not be used in perimenopausal women because of the high risk of irregular bleeding.

Postmenopausal women

Continuous combined therapy is the regimen of choice and induces endometrial atrophy.

Approximately 40% incidence of irregular spotting or bleeding in the first 6 months.

Refer Table 14 for the dose and type of estrogens used in MHT and Table 15 for the type and dosage of progesterone used in MHT.

Tibolone is prescribed 1 year after menopause.

Surgical menopause

Estrogen alone without the addition of progesterone may be prescribed or tibolone. Progesterone is added along with estrogens in hysterectomized woman in cases of endometriosis, endometrial ablation, and supracervical hysterectomy.

Refer Annexes for flowchart of menopause care and prescription of MHT.

Premature ovarian insufficiency

- OCP or HT may be prescribed till the age of natural menopause
- For cases of the genitourinary syndrome, local estrogen therapy is sufficient.

Risks and benefits of menopausal hormonal therapy

Risks

1. MHT and breast cancer

- The potential increased risk of breast cancer associated with menopausal MHT is small. With the combined estrogen–progesterone preparations, it is estimated to be an absolute increase of fewer than one case per 1000 women per less than a year of use, that is, 0.1% per year
- This increased risk is like or lower than those associated with common lifestyle factors, such as reduced physical activity, obesity, and alcohol consumption
- There is no evidence of a greater increase in risk with MHT than that observed with MHT

in the general population in women at a high risk of breast cancer, even for those with *BRCA* mutations

- MHT does not cause breast cancer and may promote the growth of preexisting cancers that might not have grown otherwise or might have remained too small to be diagnosed
- There is no increase in the risk of breast cancer by the use of estrogen alone, as suggested from the evidence in the literature.

2. MHT and VTE

- Oral MHT increases VTE risk by two-fold.
- In the first year of use, the risk of venous thrombosis increases slightly from 1 per 10,000 to 3 per 10,000; this risk may be lower with transdermal preparations
- The risk of VTE is increased with smoking, increasing age, and obesity
- Transdermal appears to be safe when needed in women with the normal and at high risk for VTE.

3. MHT and CVD

- HT should not be prescribed for primary or secondary prevention of CVD.
- However, healthy women within 10 years of menopause tend to have a risk of reduction of CVD
- The presence of cardiovascular risk factors is not a contraindication to HRT as long as they are optimally managed.
- MHT is not contraindicated in women with hypertension, and in some cases, treatment may even reduce BP.

Benefits

- Bone
- ET/EPT prevents all osteoporotic fractures even in low-risk populations
- It reduces the risk of spine, hip, and other osteoporotic fractures by 33%–40%
- Lesser colorectal cancers
- Decrease in the risk for type 2 diabetes
- Decreases abdominal obesity
- May have a protective effect on osteoarthritis
- Estrogen benefits verbal memory over the short period when initiated soon after surgical menopause
- May reduce the neovascular macular lesions
- HT in the early menopausal period improves QOL by its effects on VMSs and urogenital symptoms and improvement on sleep and mood.

Adverse effects

Minor side effects such as breast tenderness, nausea, and leg cramps are common in the first few weeks of MHT treatment.

Side effects related to the progestogen are headaches,

irritability, and bloating. These can often be resolved by changing the type or route of progestogen dose.

Follow-up

Review after 1 month for efficacy and side effects, check weight and BP, after 3 months to assess effects and compliance, then annually to include a physical examination, update of medical and family history, relevant laboratory and imaging investigations, a discussion on lifestyle, and strategies to prevent or reduce chronic disease.

General principles for prescribing menopausal hormonal therapy

A full gynecological assessment is mandatory before start MHT and yearly after that.

- As described in the chapter in evaluating menopause and annual follow-up, pre-HT clinical and laboratory workup is essential when prescribing MHT
- MHT is safe in women within 10 years of menopause without contraindications for therapy
- Counsel on all aspects of menopause and MHT. Evaluate women's needs, preferences, concerns, and individual medical risk factors and benefits before prescribing MHT.
- The continuous sequential regimen at perimenopause and continuous combined regimen at postmenopause
- Woman's Health Initiative trials and other studies support safe to use for at least 5 years in healthy women initiating treatment before 60 years of age
- MHT is prescribed in the lowest effective dose
- No reasons to place mandatory limitations on the duration of MHT. The treatment is individualized
- Risks and benefits of MHT differ for women during the MT compared to those for older women
- Not all MHT preparations have the same risk and side effect profile; treatment should be individualized for each patient
- In women aged <50 years: The benefits of MHT far outweigh the risks, and MHT should be offered to women aged between 50 and 60 years with menopausal symptoms
- Benefits of MHT outweigh the risks for women aged >60 years: Benefits of MHT equal the risks, and treatment should be individualized
- For women aged >70, the risks tend to outweigh the benefit.

Summary of management of menopause symptoms and related problems

Management of vasomotor symptoms

Postmenopausal women with mild hot flashes

- Simple lifestyle changes such as keeping the core body temperature cool and behavioral and lifestyle

modifications are often adequate to manage symptoms and usually do not seek or require pharmacologic intervention.

Postmenopausal women with moderate-to-severe vasomotor symptoms

- Lifestyle changes and behavioral modification
- If there is no contraindication to the use of MHT - Low-dose estrogen plus progestin therapy is prescribed to a woman with a uterus
- Estrogen alone if no uterus.

Postmenopausal women with moderate to severe and who are not candidates for menopause hormone therapy

- Lifestyle changes, CBT
- Predominantly daytime symptoms – Paroxetine as a first-line drug
- Predominantly nighttime symptoms – Gabapentin.

Management of genitourinary syndrome

Vaginal ET is most effective in the treatment of GSM.

Vulvovaginal atrophy

Nonhormonal lubricants and moisturizers are often recommended to provide short-term relief from mild-to-moderate vaginal dryness and dyspareunia

Lubricants

- Lubricants are specifically designed to reduce friction associated with sexual activity to provide temporary relief from vaginal dryness and dyspareunia. There are two basic types; water and silicone-based
- The WHO recommends that the osmolality of a personal lubricant should not exceed 380 mOsm/kg to minimize any risk (mucosal irritation and tissue damage), which may cause epithelial damage or cytotoxicity
- Women prone to yeast infections should avoid glycerin-based lubricants.

Moisturizers

- Vaginal moisturizers are used on a chronic maintenance basis to replace normal vaginal secretions
- They are like natural vaginal secretions, are absorbed locally and adhere to the vaginal mucosa, thus helping to rehydrate dry tissues
- They can be used several times per week, as and when needed, independent of sexual activity.
- These have comparatively long-term effects than lubricants and can be used simultaneously with other GSM therapeutic agents
- Both types of products can be used in combination with other GSM treatments.

Local estrogen therapy

Early initiation of therapy is indicated to prevent irreversible vaginal atrophy, followed by long-term

maintenance therapy.

Lifestyle

Women should be encouraged to have regular sexual activity and vaginal coitus for optimal vaginal health.

Smoking cessation would delay/prevent vaginal atrophy.

Recurrent urinary tract infections

At this age, a woman may benefit from the local application of estrogens when other causes have been ruled out.

General principles for prescribing local menopause hormone therapy

- A detailed evaluation or laboratory workup is not a prerequisite before starting therapy
- Early initiation of therapy is indicated to prevent irreversible vaginal atrophy, followed by long-term maintenance therapy
- Regarding dosages, the smallest dose for a short period help for recurrence of atrophic vaginitis, which can be tapered after the acute event to a maintenance dose for long-term benefit
- It is recommended not to use ET for more than a year of uninterrupted use
- It is safe for use even in women with comorbidities
- Progesterone is not required for endometrial protection with vaginal estrogen
- Low-dose estrogen therapy does not require endometrial evaluation in low-risk women if asymptomatic – those with irregular bleeding warrant ultrasonography and endometrial biopsy.
- Vaginal ET reduces symptoms of vulvovaginal atrophy, but it does not alleviate VMS or reduce in risk of osteoporosis VMS as systemic absorption is minimal
- There is no elevated risk of CVD or cancer (endometrial, breast, ovarian, colorectal, or hip fracture) with vaginal ET usage. There is minimal systemic absorption. Hence, the standard contraindications for systemic hormone therapy do not apply to vaginal estrogen therapy.

Regimen and dose

Estriol 0.5 mg (0.5 g vaginal cream) or CEE 0.0625 mg (in 1 g vaginal cream) for local application daily for 15 days followed by twice weekly for 1–3 months. The dose can be adjusted from 0.3 mg to 1.25 mg of CEE in 0.5–2 g of cream.

Treating genitourinary syndrome of menopause in women with a history of active or high risk for breast cancer

The initial treatment for all women with breast cancer and breast cancer survivors is the non-HTs.

If women with a history of estrogen-dependent breast

cancer are unresponsive to nonhormonal remedies, they also advise using vaginal ET appropriate for these patients, but only after a thorough discussion of risks and benefits.

Sexual dysfunction

- Advise the use of lubricants and moisturizers
- Avoid precipitants that exacerbate vaginal dryness and increase BV incidence and thrush, such as vaginal deodorants or tight, restricted clothing
- Promote continence by encouraging pelvic floor exercises or referral to continence services
- Vaginal ET can be prescribed and used in conjunction with lubricants in case of vulvovaginal atrophy
- Systemic HT is restricted to women with low libido.

Dose

- Vaginal estriol succinate cream 0.5 mg or tablet estriol 1 mg, 2 mg or vaginal CEE 0.625mg if urogenital atrophy is present
- Tibolone 2.5 mg OD ta6 weeks to 3 months for libido.

Management of osteoporosis

The goal is to maintain and prevent bone loss.

Therapeutic lifestyle management

- This is an essential part of the management of osteoporosis.
- It includes a balanced diet, adequate physical activity, and exposure to sunlight
- Avoidance of bone-depleting agents such as tobacco and alcohol.
- Low sodium intake: daily salt intake should not exceed 5 g (1 tsp)
- Protein should be 1 g/kg body weight
- Decrease caffeine intake (<3 cups/day), limit alcohol, and avoid tobacco use.
- Maintain calcium and Vitamin D levels.
- Adequate physical activity is needed to maintain bone health. Appropriate resistance and weight-bearing maintain bone health. Balance exercises times a week for 30 min is part of maintaining health but on its own would not be sufficient for bone health
- Patients with severe osteoporosis should avoid engaging in motions, such as forward extension exercises, using heavyweights, or even performing side-bending exercises, because pushing or pulling the spine may lead to fracture.

Prevention of falls

Prevention of falls can decrease the risk of an osteoporotic fracture, particularly of the hip and wrist.

Refer Algorithms 1 and 2 for the management - Refer to

Clinical Aids.

Cardiovascular disease

All peri-menopausal women should have an individual CVD risk assessment. Women should receive lifestyle advice where modifiable risk factors are identified (stopping smoking, weight reduction, healthy diet, increased regular exercise).

When to refer

- Problems while on MHT.

Key messages

1. The most effective treatment for vasomotor symptoms is systemic MHT
2. Vaginal estrogen therapy is the most effective in treating urogenital atrophy and may be used in women with comorbidities
3. Systemic MHT for the management of osteoporosis within the first 10 years of menopause
4. Treatment for POI, MHT, or OCP, is advised at least until the average age of menopause
5. The contraindications to systemic MHT are active or previous breast cancer, EC, and ovarian hormone-dependent cancers. Severe active liver disease with impaired or abnormal liver function
6. There are no absolute contraindications to local vaginal estrogen therapy
7. In a woman with a uterus, unscheduled vaginal bleeding is a common side effect of MHT within the first 3 months of treatment.

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MODULE 5: TOOL KIT FOR MENOPAUSE MANAGEMENT

Setting up of a menopause clinic

Aim

The aim is to offer a comprehensive, friendly service under one roof to care for climacteric and geriatric women. Specialized menopause clinics are meant to be dedicated to meet the unique and changing medical needs of women from perimenopause through the golden years.

Level of care

- Level I: Primary care unit
- Level II: Multidisciplinary unit.

Requirements

- Level I: Primary care unit
- Premises: Waiting area and consultation room
- Personnel
 - Core team: General physician and a paramedic
 - Ancillary team: Visiting consultants to be invited
- Instruments and equipment: Weight machine, stadiometer, sphygmomanometer, measuring tape, thermometer, the speculum of various sizes, acetic acid, Lugol's iodine, pH sticks, examination table, a light source with provision for lithotomy position, Pap smear kits, HPV kits
- Stationery
 - Menopause card, prescription pads, investigation requisition forms, educational charts and leaflets, and computer (optional)
 - Documentation, record keeping, and client recall system are essential to maintain continuity of complete healthcare
 - Related nonmedical services for esthetic care, hobbies, occupational therapy. Seminars, workshops, a helpline training program for professional education and group activities for women. We need to screen for diabetes mellitus as depicted in Table 16.

Table 16: Screening for diabetes mellitus

Test	Prediabetic screen	Diabetes diagnosis
Fasting plasma glucose	100-125 mg/d impaired fasting glucose	≥126 mg/dl
2 h, 75 g oral GTT	140-199 mg/dl (impaired glucose tolerance)	≥200 mg/dl
HbA1c	5.7%-6.4%	≥6.5%

GTT: Glucose tolerance test, HbA1c: Glycosylated hemoglobin

WHO/ISH –HCardiovascular risk prediction chart

WHO/ISH risk prediction charts predict 10-year risk of combined myocardial infarction and stroke risk, fatal and nonfatal have been developed from the best available mortality and risk factor data of these low- and middle-income country populations.

At present, these charts are necessarily crude but are simple, safe, and useful tools for guiding the management and treatment decisions for individuals.

The charts can have an impact on the prevention of heart attacks and stroke, particularly if they can be used by health workers in primary health care.

When are the charts useful for stratifying risk?

Charts are useful for stratifying risk for people with BP <160/100 mmHg or blood cholesterol <8 mmol/l or uncomplicated diabetes.

An individual is classified as high, medium, or low risk over 10 years.

The following come under the high-risk category, no risk assessment, they need to be treated

Persistent raised BP ≥160/100 mmHg or blood cholesterol ≥8 mmol/l or established ischemic heart disease, or diabetes with renal disease.

Note that CVD risk may be higher than indicated by the charts in the presence of the following

Already on antihypertensive therapy, premature menopause, obesity (including central obesity); sedentary lifestyle; family history of premature CHD or stroke in first-degree relative (male <55 years, female <65 years); raised levels of C-reactive protein, microalbuminuria (increases the 5-year risk of diabetics by about 5%).

There are two sets of charts.

1. One set can be used in settings where blood cholesterol cannot be measured.
2. Second set is for settings in which blood cholesterol can be measured Refer charts 1,2,3,4.

How do you use the charts to assess cardiovascular risk?

- First make sure that you select the appropriate chart
- If blood cholesterol cannot be measured due to resource limitations, use the charts that do not have total cholesterol
- Before applying the chart to estimate the 10-year cardiovascular risk of an individual, the following information is necessary
 - Presence or absence of diabetes
 - Gender
 - Smoker or non-smoker
 - Age
 - Systolic BP
 - Total blood cholesterol (if in mg/dl, divide by 38 to convert to mmol/l).

Once the above information is available, proceed to

estimate the 10-year cardiovascular risk.

- Step 1 Select the appropriate chart depending on the presence or absence of diabetes
- Step 2 female tables
- Step 3 Select smoker or nonsmoker boxes
- Step 4 Select age group box (if age is 50–59 years, select 50; if 60–69 years, select 60; etc.)
- Step 5 Within this box, find the nearest cell where the individual’s systolic BP (mmHg) and total blood cholesterol level (mmol/l) 4 cross.

The color of this cell determines the 10-year cardiovascular risk.

An individual is classified as high risk (maroon and red), medium risk (orange and yellow), or low risk (green) over 10 years, Table 17

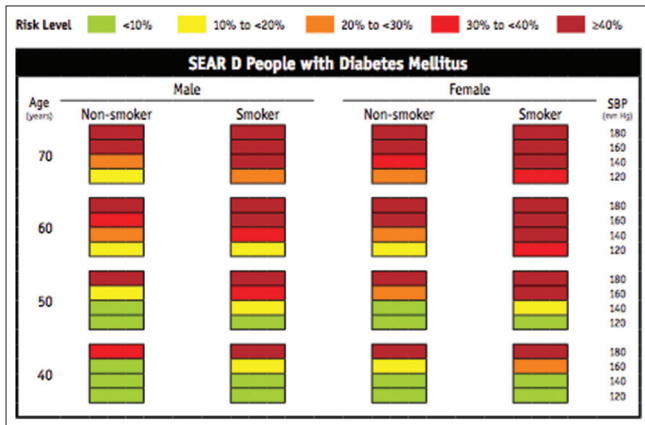
Table 17:

Low (green)	Moderate	High
>10%	10%-30%	30%->40%
10-year cardiovascular risk		

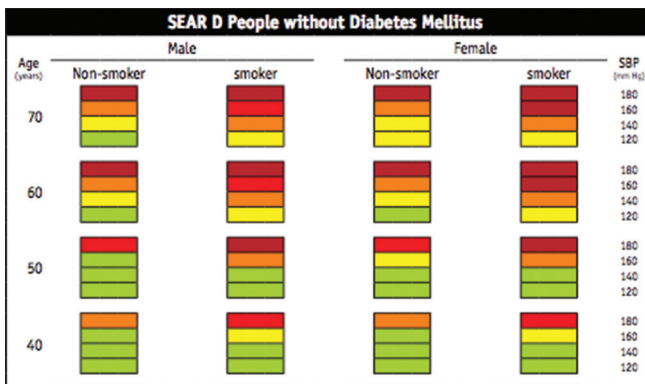
WHO/ISH risk prediction charts for India:

10-year risk prediction chart for CVD events by gender, age, systolic BP, smoking status, and presence or absence of diabetes mellitus

Risk prediction Chart 1

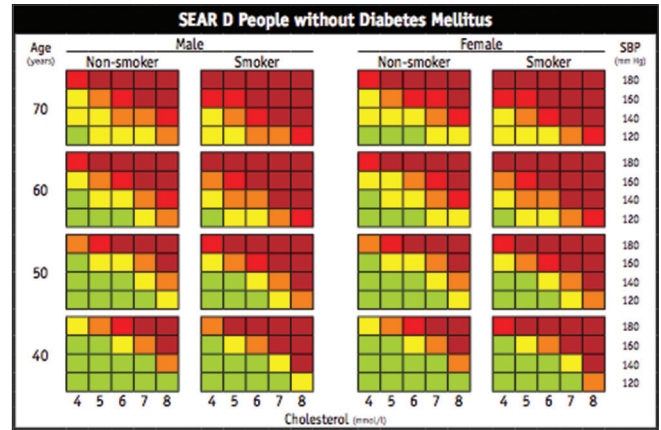


Risk prediction Chart 2

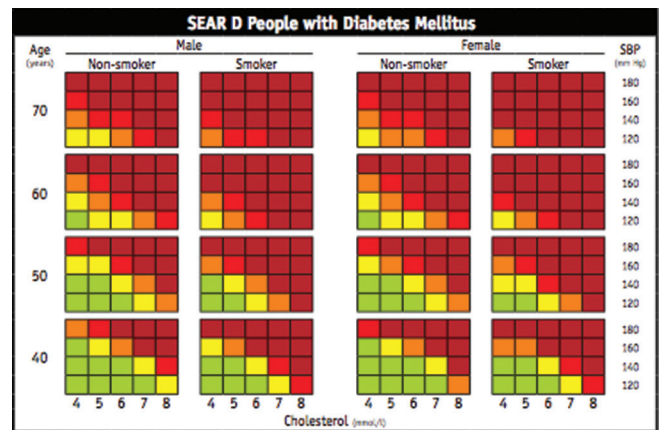


10-year risk prediction chart for CVD events by gender, age, systolic BP, smoking status, cholesterol, and presence or absence of diabetes mellitus.

Risk prediction Chart 3



Risk prediction Chart 4



Risk assessment for breast cancer

The Breast Cancer Risk Assessment Tool, Gail Model allows health professionals to estimate a woman’s risk of developing invasive breast cancer over the next 5 years and up to age 90 (lifetime risk) [Table 18].

The tool uses a woman’s personal medical and reproductive history and the history of breast cancer among her first-degree relatives (mother, sisters, and daughters) to estimate absolute breast cancer risk—her chance or probability of developing invasive breast cancer in a defined age interval.

It needs to be validated in India. This simple tool may be used in the absence of country-specific validated tool (available from: <https://www.cancer.gov/bcrisktool>) and classifies the women into three groups.

Table 18: Gail Model

Method	Low	Moderate	High
Gail model	<1.67	1.6-5	>5

Breast self-examination

BSE is performed by the woman herself and involves examination of the breast, skin, and axillae based on palpations by her hands. BSE is recommended so that women understand their breasts for detecting any suspicious changes over time [Figure 9].

BSE should be done immediately after periods or any fixed day of the month if there is not menstruating. Nodular and lumpy feel of the breast and increased pain and tenderness, which is a physiological finding before menstruation, needs to be explained to the patient.

Women can be taught to examine the breasts in any of the following ways in both supine and standing positions.

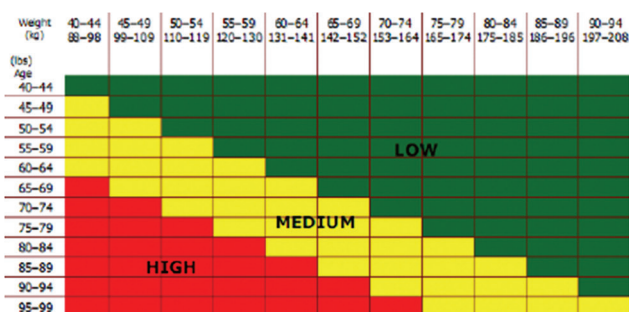


Chart 5: Osteoporosis self-assessment tool for Asians

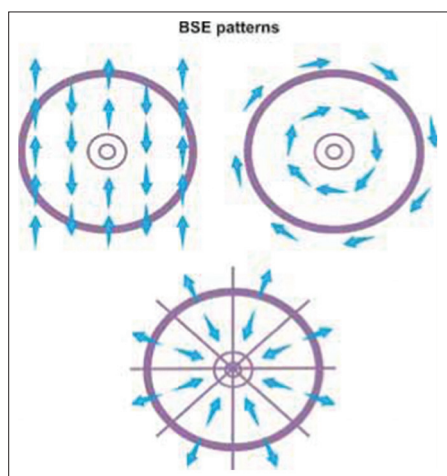


Figure 9: Self Breast Examination

Osteoporosis screen

1. WHO developed the osteoporosis self-assessment tool for Asians (OSTA) score a risk assessment tool based simply on age and body weight to identify the women at risk for osteoporosis.

The OSTA is calculated using the following formula: (body weight [kg] – age [years]) × 0.2, with the decimal

digits being disregarded or the chart below may be used.

Women are stratified into three groups at risk for sustaining osteoporosis Table 19

Table 19: Osteoporosis self-assessment tool for Asians (OSTA)

Method	Low	Moderate	High
OSTA	>-1	-1--4	<-4

OSTA: Osteoporosis self-assessment tool for Asians

Recommendation based on risk

- High-risk patients: to measure BMD, if possible, and consider drug treatment even if BMD if not available (about 61% of individuals in the high-risk group have osteoporosis.)
- Moderate-risk patients: to measure BMD and consider drug treatment if BMD is low (about 15% of individuals in the moderate-risk group have osteoporosis)

Table 20: 10-year absolute risk for a fracture

Hip	>3%
Major fracture	>20%

- Low-risk patients: Not to measure BMD unless other risk factors are present (only about 3% of individuals in the low-risk group have osteoporosis).
2. Fracture Risk Assessment Tool (FRAX): It is country-specific and an online tool available for India (<http://www.shef.ac.uk/FRAX>). FRAX is used to identify patients in the osteopenia group most likely to benefit from treatment. It predicts the 10-year absolute risk for a fracture in an individual and the cost-effective analysis determines the interventional threshold above which treatment is cost-effective. FRAX is country-specific, and until more Indian data are available on the prevalence of osteoporotic fractures and mortality rates, it may not serve the true purpose for the usage of FRAX in the Indian context.

10-year absolute risk for a fracture in an individual to decide for treatment Table 20

Sarcopenia screening

European Working Group on Sarcopenia in Older People (EWGSOP) advises use of the SARC-F questionnaire or clinical suspicion to find sarcopenia-associated symptoms.

1. Screen by history: A case-finding strategy starts when a patient reports symptoms or signs of sarcopenia, i.e., falling, feeling weak, slow walking speed, difficulty rising from a chair or unintentional weight loss/muscle wasting

2. In such cases, testing for sarcopenia is recommended by using SARC-F questionnaire, SARC-F is a self-administered questionnaire, which has five components including strength, assistance in walking, rise from a chair, climb stairs, and falls with a 3-level score range of 0 to 2 points for each item [Table 21]
3. SARC-F is an inexpensive and convenient method for sarcopenia risk screening
4. SARC-F has a low-to-moderate sensitivity and a very high specificity to predict low muscle strength.

Table 21: SARC-F questionnaire

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 lb?	None-0 Some-1 A lot or unable-2
	Assistance in walking	How much difficulty do you have walking across a room? None-0 Some-1 A lot, use aids, or unable-2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None-0 Some-1 A lot or unable without help-2
Climb stairs	How much difficulty do you have climbing a flight of 10 stairs?	None-0 Some-1 A lot or unable-2
Falls	How many times have you fallen in the past year?	None-0 1-3 falls-1 ≥4 falls-2

SARC-F score

1. The total score range is from 0 to 10, with scores of 0 stairs? ? ty to predict low muscle strengthse
2. Assess for evidence of sarcopenia:

EWGSOP recommends use of grip strength or a chair stand measure with specific cut-off-points for each test.

3. EWGSOP2 sarcopenia cut-off points for low strength by chair stand and grip strength
 - Grip strength <16 kg
 - Chair stand >15 s for five rises.

Methods

1. Grip strength-handgrip strength is the most widely used method for the measurement of muscle strength.
 - Time of administration: 5 min
 - Equipment: A well-calibrated handheld dynamometer
 - Methods: Six measures should be taken, 3 with each arm. Ideally, the patients should be encouraged to squeeze as hard and as tightly as possible during 3–5 s of the measure, the highest reading of the 6 measurements is reported as the final result.
2. Chair stand test

The chair stand test (also called chair rise test) can be used as a proxy for strength of leg muscles (quadriceps muscle group).

 - Time of administration: 1–2 min
 - Equipment: A chair with a straight back without arm rests and a stopwatch
 - Method: The subject is first asked to stand from a sitting position without using their arms. If he/she is able to perform the task, he/she is then asked to stand up and sit down five times, as quickly as possible with arms folded across their chests. The time to complete five stands is recorded. The chair stand test measures the amount of time needed for a patient to rise five times from a seated position without using his or her arms.

ANNEXURES

Annexure 1: Midlife Health Card

A pro forma for an initial assessment and follow-up is ideal to maintain the record of the health of the midlife woman.

Name:	Date:
Age:	Register number:
Marital status:	Telephone number:
Occupation:	Address:
Community:	Educational Status:
Age at menarche:	Socioeconomical Status:
Age at menopause:	
Type of Menopause: Natural/Surgical/Premature	
If surgical:	
Date:	
Indication:	
Hysterectomy/Hysterectomy with bilateral oophorectomy:	
Complaints:	
Gynec history:	
Menstrual cycle: Regular/irregular	Duration:
Flow pattern before menopause: No change/Stopped abruptly/Scanty	Irregular-Short cycle/Long cycle/Mixed
Obstetric PLA history:	LCB
Lactation: Complete/Incomplete	Duration:
Postpartum depression:	
Surgical history:	
Family history: DM/HTN/IHD/Stroke/Cancer/Early Menopause/Osteoporosis/Alzheimer/Psychotic illness	
Personal history: DM/HTN/IHD/Dyslipidemia/Asthma/Gallstones/Rheumatoid Arthritis/Psychotic illness/Thyroid	
Addiction: Caffeine/Alcohol/Tobacco	
Allergies:	
Medication:	
Diet: Veg/Non-Veg	
Calcium Dairy products - cups	Non diary - Yes/no
Exposure to sunlight: Yes/No	Duration: No of times in a week
Routine physical activity: Sedentary/Household/Heavy work	
Exercise: None/Walking/Yoga/aerobic	Hours/Week
Mental attitude: Positive/Negative	
Spiritual attitude: Yes/No	
Hobbies:	
Stressful events:	

Physical Examination:

Date	Pulse/ BP	Height meters/ weight in kg	BMI/WC in cm	Right breast	Left breast	Gait	Getting up from chair	GynaecP/s Pv
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Investigations:

Date
CBP
Urine analysis
FBS/Hb1Ac
Serum TSH
Cholesterol
Triglycerides
HDL
LDL
LFT
Serum creatinine
VIA
Pap's smear
Ultrasound

Impression: Healthy with no problems/healthy with menopausal symptoms/healthy with risk factor/healthy with latent disease/medically compromised.

Plan of Management:

ANNEXURE 2: MENOPAUSE RATING SCALE

Menopause rating scale (MRS) is used to document the degree of severity consistent with menopausal symptoms in terms of percentage at the initial and follow-up visits. It also reflects the effectiveness of therapy

Symptoms: Menopause symptom rating scale

Description	V1	V2	V3	V4	V5	V6	V7	V8
Hot flushes, sweating								
Heart discomfort								
Sleep problems								
Depressive mood								
Irritability								
Anxiety								
Sexual problems								
Physical and mental exhaustion								
Bladder problems								
Dryness of the vagina								
Joint and muscular discomfort								

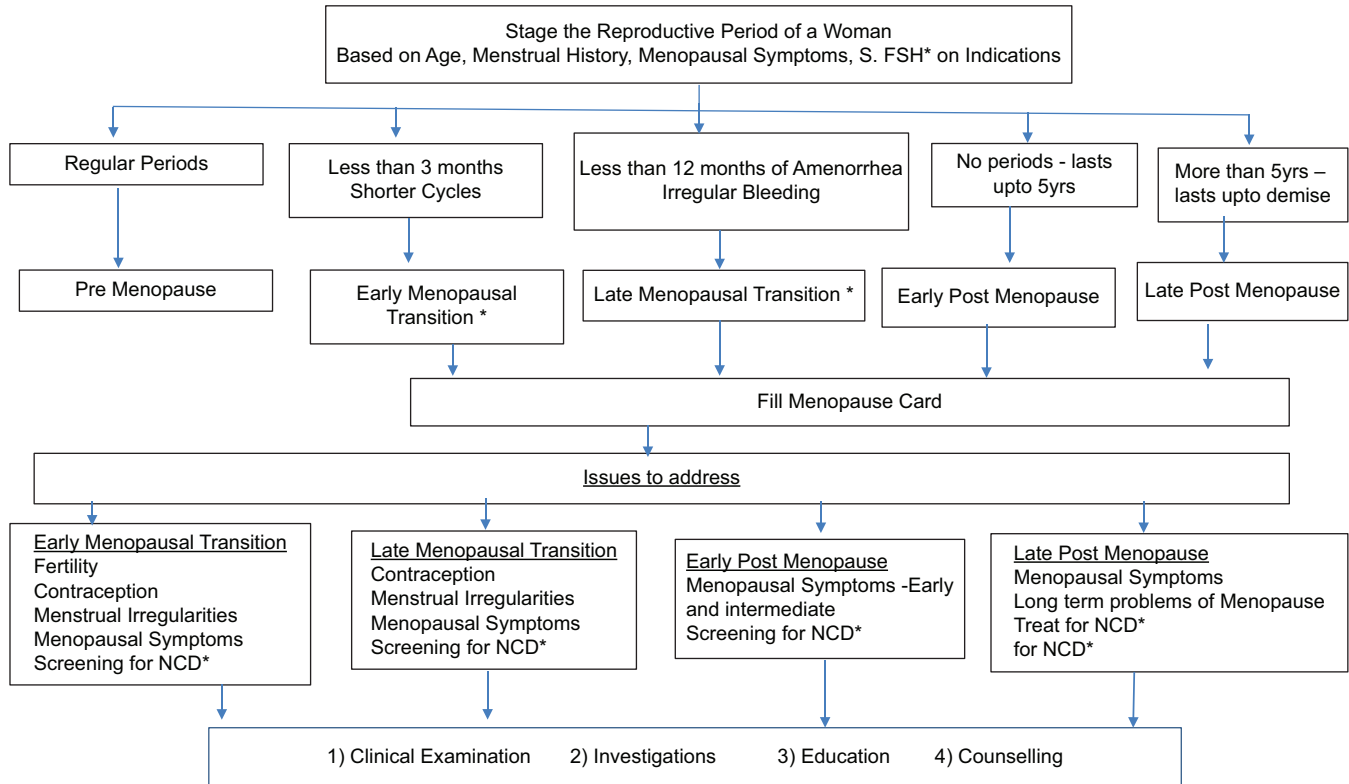
According to WHO standard, the degree of severity are consistent with:

Symptom	Percentage
No problem	0-4
Mild problem	5-24
Moderate problem	25-49
Severe problem	50-95
Complete problem	95-100

Description of the symptoms of MRS

Item	Description
1	Hot flushes, sweating (episode of sweating)
2	Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)
3	Sleep problems (difficulty falling sleep, difficulty in sleeping through the night, waking up too early)
4	Depressive mood (feeling “down,” sad, on the verge of tears, lack of derive, mood swings)
5	Irritability (feeling nervous , inner tension, feeling aggressive)
6	Anxiety (inner restlessness, feeling “panicky”)
7	Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness, fatigue, headache, dizziness)
8	Sexual problems (change in sexual desire, in sexual activity and satisfaction)
9	Bladder problems (difficulty in urinating, increase need to urinate, bladder incontinence)
10	Dryness of the vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)
11	Joint and muscular discomfort (joint pain, muscle pain, backache)

ANNEXURE 3: ALGORITHM FOR MENOPAUSE MANAGEMENT

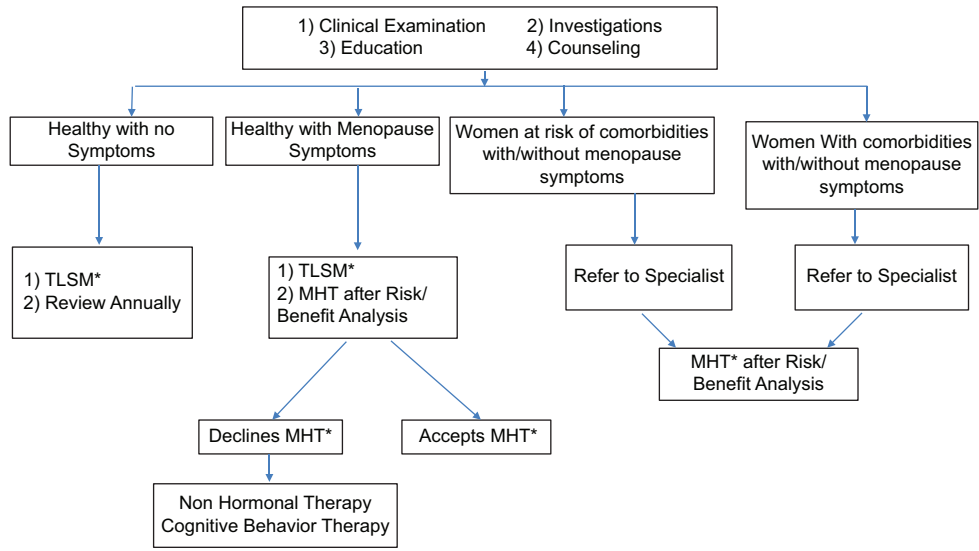


*S. FSH – Serum Follicle Stimulating Hormone

* NCD – Non Communicable Diseases

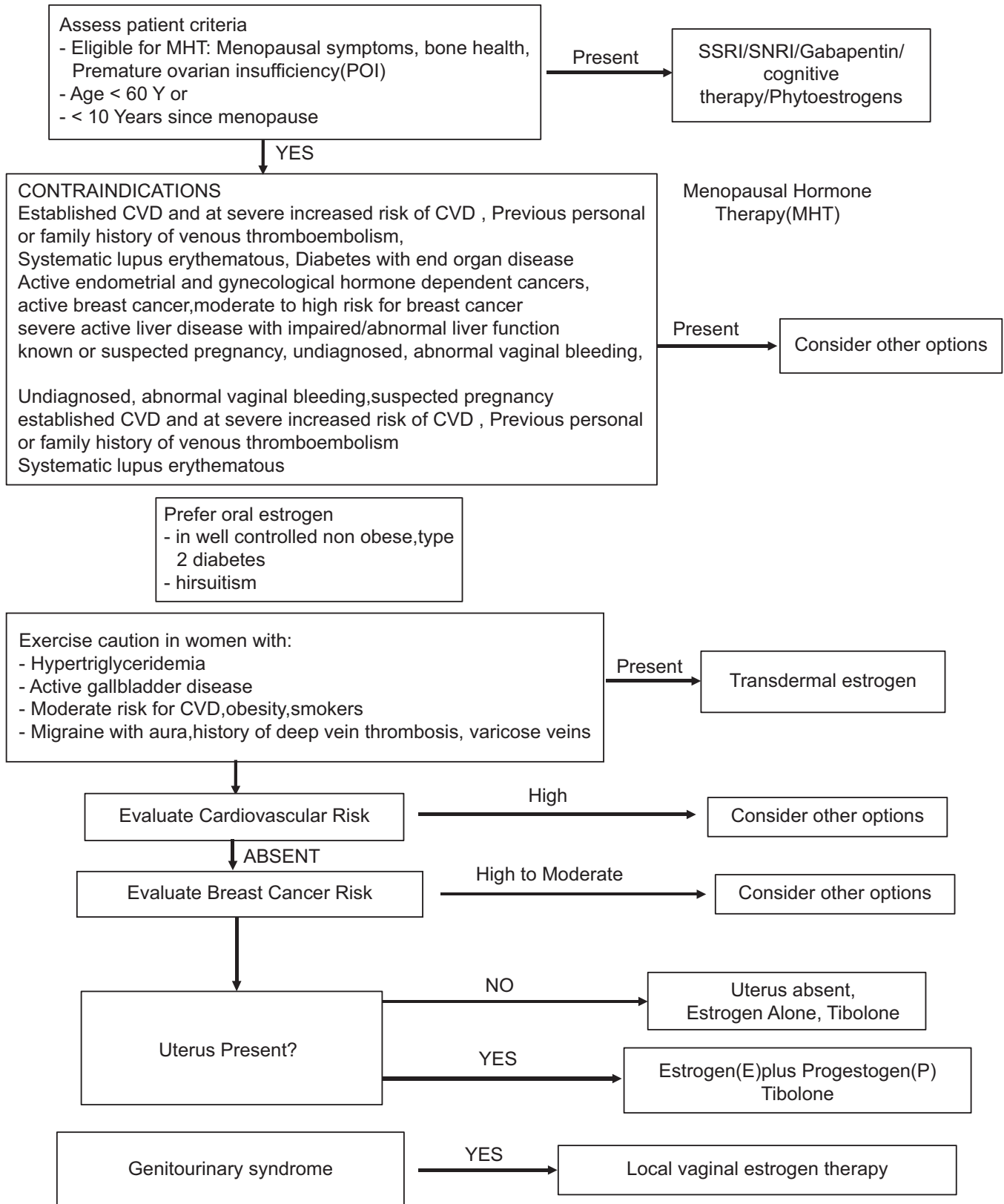
* Menopausal Transition is also referred to as Perimenopause

* Menopause is the final period followed by 12 months of Amenorrhoea

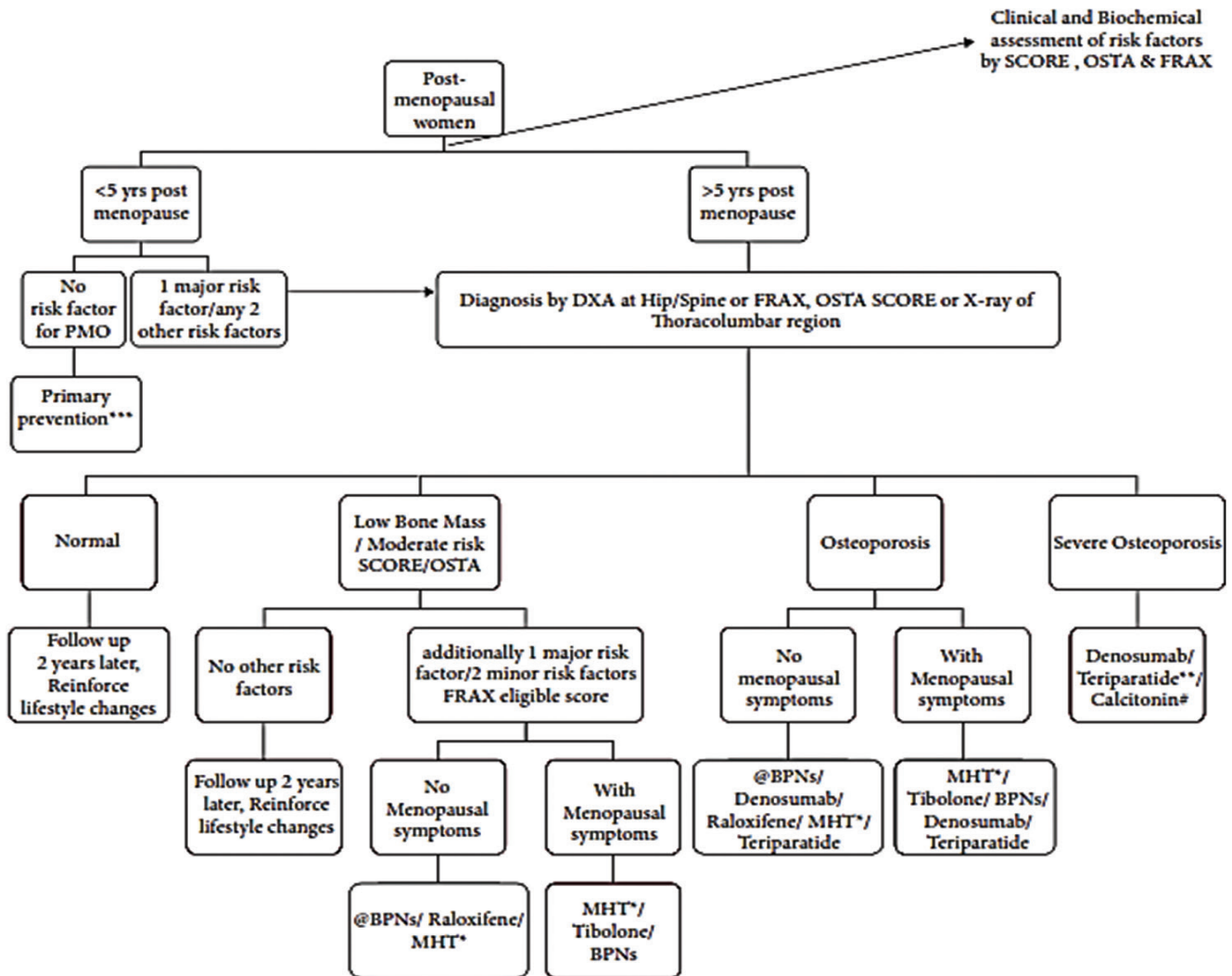


*TLSM - Therapeutic Lifestyle Management
*MHT – Menopausal Hormone Therapy

ANNEXURE 4: FLOW CHART FOR INITIATION OF PRESCRIPTION OF MENOPAUSAL HORMONE THERAPY(MHT) IF AGE < 60 YRS OR MENOPAUSE < 10 YEARS



ANNEXURE 5: ALGORITHM FOR MANAGEMENT OF OSTEOPOROSIS



*** Primary Prevention for all –

Nutrition, Lifestyle Modification, Adequate Vitamin D and Calcium, Exercise, Avoid bone depleting agents,

@Bisphosphonates

Drug holiday after 3 years for IV zoledronate, 5 years for oral, Consider continuation after a drug holiday

Denosumab

Effective on vertebral, hip and non-vertebral fractures, long term management without drug holiday, even for those with Cr Cl <30 ml/min

Raloxifene

Effective on vertebral fractures at high risk of breast cancer

** Teriparatide

Can be used upto 2 years, effective on vertebral fractures

*MHT

Menopausal hormone therapy to be used within 10 yrs of menopause, pre-initiation workup, review annually, individualize therapy

Calcitonin#

Analgesic, short term for three months in vertebral fractures, 5 yrs post-menopause

FRAX: WHO fracture risk algorithm, SCORE: Simple calculated osteoporosis risk estimation, OSTA: Osteoporosis self assessment tool for Asians, DXA: Dual-energy X-ray absorptiometry, PMO: Post-menopausal osteoporosis.

POSTMENOPAUSAL WOMAN- WITH FRAGILITY FRACTURE



IMMEDIATE- PAIN RELIEF, SURGICAL MANAGEMENT,
CALCIUM , VITAMIN D SUPPLEMENTATION (Essential co-prescription)

INVESTIGATION----- Essential, Rule out secondary causes,



Follow up



Multidisciplinary Management

BMD (SPINE, HIP, RADIUS) BY DXA (repeat after 1-2 yrs)

Bone markers for monitoring therapy



Pharmacotherapy

Physiotherapy

Therapeutic Lifestyle Management

Identify factors for recurrence

Diet

Rehabilitation at home and workplace

Psychological support

Teriparatide

Denosumab,

Biphosphonates

Calcitonin-pain relief in vertebral fracture

Aim -Quality of life

Independence at home and work

FIX THE FRACTURE : TREAT THE OSTEOPOROSIS

ANNEXURE 6: DRUG CHART

Drug	Dosage	Route	Position in therapy	Vertebral*	Hip*	Non-vertebral*	Precautions
Alendronate	5/10 mg daily 35/70 mg weekly 150 mg monthly	Oral	1 st line	Yes, 50%	Yes, 51-56%	Yes, 49%	Hypocalcemia, Vitamin D status, should not be used in patients with eGFR below 30 ml/min, pregnancy, lactation, pediatric, ONJ, AFF
Risedronate	5 mg daily 35 mg weekly 150 mg monthly	Oral	1 st line	Yes, 41-49%	Yes, 30%	Yes, 36%	Hypocalcemia, Vitamin D status, should not be used in patients with eGFR below 30 ml/min, pregnancy, lactation, pediatric, ONJ, AFF
Zoledronate	5 mg	IV	1 st line	Yes, 70%	Yes, 41%	Yes, 25%	Hypocalcemia, Vitamin D status, should not be used in patients with eGFR below 30 ml/min, pregnancy, lactation, pediatric, ONJ, AFF
Teriparatide	20 mcg	SC	For severe osteoporosis	Yes, 65%	Insufficient data	Yes, 53%	Hypocalcemia, Vitamin D status, Hypersensitivity, local tissue damage, pregnancy, lactation, pediatric,
Denosumab	60 mg	SC	1 st line	Yes, 68%	Yes, 40%	Yes, 20%	Hypocalcemia, Vitamin D status, pregnancy, lactation, pediatric,
MHT	Various regimes	Various regimes	1 st line with menopausal symptoms (<10 years menopause)	Yes, 30-70%	Yes, 40%	Yes, 27%	Blood clots, Cancer (such as breast, uterine, or endometrial), Heart or liver disease, Heart attack, Known or suspected pregnancy, Stroke
Raloxifene	60 mg	Oral	At risk of breast cancer, without Vasomotor symptoms, <10 years menopause	Yes, 40%	No	No	With a low risk of DVT and for whom bisphosphonates or denosumab are not appropriate, or with a high risk of breast cancer
Tibolone	2.5 mg	Oral	1 st line <10 years menopause	Yes, 50%	Yes, 26%	Yes, 26%	To stop tibolone a few weeks before any operation to reduce the risk of a blood clot, drug interaction with warfarin
Calcitonin	200 IU	Nasal spray	2 nd line	Yes, 21%	No	No	Serious hypersensitivity reactions, including fatal anaphylaxis, reported; consider skin testing prior to treatment

ANNEXURE 7: ALGORITHM FOR MANAGEMENT OF SARCOPENIA

