.ejaypee.com, for detailed information on obstetrics & gynecology books, visit our website www.ejaypee.com, for detailed information on obstetrics & gynecology books











Manual on
Practical Points in Treatment of Menopause

Series Editors
Ashok Kumar
Madhavi M Gupta
K Aparna Sharma

Editors
Manju Khemani
Maninder Ahuja
Archana Dwivedi
Shyjus P
Vinita Gupta

Co-Editors
Jyoti Bhaskar
Kiranjeet Kaur
Meenakshi Ahuja



Contents

SECTION 1: Prescription Writing

Section Editor: **Manju Khemani**

1. **Overview of Menopause Hormone Therapy 1**
   Shyjus P
2. **Evaluation of Indications and Patients of MHT 8**
   Jyoti Bhaskar
3. **Prescribing MHT 13**
   Kiranjeet Kaur
4. **HRT in Breast Cancer Survivor 22**
   Anita Kant, Amrita Razdan Kaul
5. **MHT in Patients with Hypertension or Diabetes 29**
   Bipasa Sen
6. **Hormone Replacement Therapy (HRT) in Women with Migraine Practical Decision Pathways 35**
   Renu Meena
7. **MHT in Endometriosis 37**
   Jyoti Jaiswal
8. **Genitourinary Syndrome of Menopause Management 40**
   Kiran Aggarwal
9. **Tibolone 45**
   Ushma Maniar
10. **Adult Vaccination: What's Important, What's Essential 52**
    Meenakshi Ahuja, Aarshika Singh
11. **Menopausal Symptoms, Menopause Risk and their Assessment 57**
    Renuka Malik

SECTION 2: Break the Silence—Not the Bones: A Life Course Management of Osteoporosis

Section Editor: **Maninder Ahuja**

12. **Pathogenesis of Osteoporosis 67**
    Suneeta Mittal

13. **Risk Factors for Weak Bones, Magnitude of the Problem** 72
Archana Dwivedi, Saraswathi Kondapalli

14. **Role of Estrogen in Postmenopausal Osteoporosis** 79
Ruchika Garg

15. **Crosstalk between Osteoporosis and Sarcopenia** 85
Binal Shah

16. **Attainment of Adolescent PBM and Prevention of Osteoporosis** 92
Uma Vaidyanathan

17. **Osteoporosis is Silent but Fractures are Painful—Fall and Fracture Prevention in Postmenopausal Osteoporosis** 99
Maninder Ahuja

18. **Role of Diet and Weight in Osteoporosis** 107
Taruna Dua

19. **Clinical Diagnosis of Osteoporosis in OPD** 112
Shubhi Gupta, Neelam Aggarwal

20. **Pharmacological Management of Osteoporosis** 119
Mayank Vashishtha, Ajay Aggarwal, Aakansha Shukla, Setu Gupta

21. **Osteoporosis Challenges and Future Directions** 125
Archana Dwivedi, Saraswathi Kondapalli

22. **Role of Exercise and Type of Exercise for Osteoporosis** 132
Manju Varma

23. **Osteoporosis in Postmenopausal Women and its Diagnostic Evaluation with DEXA Scan/BMD (Bone Mineral Density)** 138
SS Doda

5 CHAPTER

MHT in Patients with Hypertension or Diabetes

Bipasa Sen

Hormone therapy has always been a topic of controversy, confusion, myth-producing, as well as the center of overdependence or criticism, especially since the landmark WHI study in 2002.

The reanalysis of WHI data and many further studies and trials have pointed to a single direction - "individualization of Hormone Therapy" to get the women to benefit and no negative impact from it. Hormone therapy has to be individualized according to age, race, ethnicity, sociodemography and cultural factors and also according to the symptoms, needs, priority and co-morbidities of each beneficiary. Hormone therapy and its relation to co-morbidities like hypertension and diabetes should always be discussed as per risk risk-benefit assessment of each individual.

THE 5Ws OF PRESCRIBING MENOPAUSAL HORMONE THERAPY

(MHT – Previously called Hormone Replacement Therapy or HRT – which is now applicable in case of premature ovarian insufficiency or POI)

The White Paper published by the International Menopause Society at the Melbourne IMS Conference in October 2024 stressed on 5Ws for prescribing MHT, which include:

1. Who is MHT for
2. What types & doses of MHT
3. When should MHT be started and stopped
4. Why is MHT important
5. Where can MHT be accessed

Out of these 5Ws, the first one points towards absolute indication of Hormone Therapy, which are bothersome vasomotor symptoms and genitourinary syndrome. In the USA and Australia, Osteoporosis prevention also falls under the primary indication.

Many other women might benefit from Hormone Therapy, for whom it is not indicated according to the label. Under this category come many co-morbidities, including hypertension and diabetes. The second point in 5Ws - i.e. what types of MHT indicate estrogen and progesterone in different regimes and routes. Tibolone or SERM may be another option.

JAYPEE BROTHERS

The Beneficial Effects of Estrogen to protect Women from Cardiovascular Emergencies include :

- Estrogen increases endothelial nitric oxide synthetase level – thus increasing potent vasodilator Nitric Oxide (NO) – resulting in vasodilatation. Nitric Oxide is involved in the regulation of blood pressure, platelet function, inhibition of vascular smooth muscle proliferation and expression of adhesion molecules.
- Estrogen reduces the release of Endothelin – 1, which is a family of peptides synthesized by Endothelial cells and acts in a paracrine fashion on smooth muscle cells to cause vasoconstriction.
- Post menopausal oral estrogen replacement results in lowering of PAI – 1 and E-Selectin in hypercholesterolaemic women.
- Decrease in cell adhesion molecules E- E-Selectin and VCAM – 1 have also been observed in healthy post menopausal women with both oral and transdermal HRT- suggestive of a reduction in vascular inflammatory changes.
- Estradiol inhibits Calcium influx in vascular smooth muscle and reduces intracellular free calcium in isolated cardiac myocytes. Thus, estrogen promotes vasodilatation, which benefits arterial function.
- A reduction in the activity of angiotensin-converting enzyme has been reported with both oral and transdermal HRT. Thus estrogen impacts on Renin-Angiotensin-Aldosterone System (RAAS), causing a beneficial effect in terms of CVD risk. The progesterone drosperinone, with its antimineralocorticoid effects, also influences RAAS. HRT containing transdermal estrogen and drospirenone results in a significant reduction in blood pressure in women with mild hypertension. Natural micronized progesterone generally does not raise BP. Synthetic progesterone, like Medroxyprogesterone acetate, might blunt estrogen's beneficial vascular effects.
- Estrogen improves lipid profile, homocysteine, fibrinogen; protects against the toxic effects of Oxidised LDL and thus helps in cardiovascular disease prevention.

MHT AND HYPERTENSION

- Hormone therapy with standard agents like estradiol valerate or conjugated equine estrogen has effect on blood pressure and can be given if the patient has controlled hypertension.
- However, ethinyl estradiol used in oral contraceptive pill has 4 times higher potency of estrogen and may cause deep vein thrombosis.
- In 11 of 13 studies with Transdermal Estrogen, blood pressure was reduced with MHT.
- Menopausal HT can improve in recently developed hypertension, often leading to an enhanced response to antihypertensive drugs.

JAYPEE BROTHERS

- In case of aggressive postmenopausal hypertension, the option to initiate transdermal hormone therapy should be discussed with a cardiologist.
- Oral HRT may cause mild BP elevation in women with preexisting hypertension, but transdermal estradiol has a neutral or even beneficial effect on BP and Endothelial function.
- However, MHT is not indicated for the primary prevention of Cardiac disease.
- MHT is contraindicated in established coronary artery disease and uncontrolled hypertension.

EVIDENCE SUMMARY

- Large studies (WHI, HERS) found no major increase in hypetension risk with HRT overall, but route and formulation matter. Transdermal route preferred. Of the progesterone part of HRT, micronized progesterone and dydrogesterone preferred.
- KEEPS Trial showed that oral 0.45 mg conjugated equine estrogen or transdermal estradiol patch, along with cyclical micronized progesterone 200mg per day for 12 days, if given within 36 months of menopause, does not raise blood pressure.
- ELITE Trial showed that HRT containing 1mg of estradiol causes less progression of carotid intima media thickness if given within 6 yrs of menopause or in less than 60 yrs age group.

MONITORING AND SAFETY CHECKLIST FOR HRT

- Avoid oral estrogen in women with preexisting moderate hypertension.
- Avoid synthetic progesterone like medroxyprogesterone acetate.
- Transdermal estradiol patch plus oral micronized progesterone/ dydrogesterone preferred.
- Vaginal estrogen is always safe.
- Before starting HRT, check BP, assess CVD risk, BMI, Lipid profile and Glucose.
- Recheck BP after 6–12 weeks and adjust estrogen dose if required.
- Annually review symptoms, BP, breast and endometrial health.
- If persistent hypertension (≥160/100 mm Hg despite control) – stop HRT.

Algorithm: HRT in Hypertensive Women

- *Assess the woman:* Review the indication for HRT (vasomotor symptoms/ urogenital atrophy)
- Evaluate Blood Pressure and CVD Risk
  - If controlled BP (140/90 mm Hg) – proceed
  - If mild to moderate hypertension (140-159/90-99 mm Hg) – initiate HRT and optimize BP control.

JAYPEE BROTHERS

  - Uncontrolled hypertension (≥160/100 mm Hg) – defer HRT until BP is controlled (stroke risk).
- Choose the safest route :
  - Transdermal estrogen (patch/gel/spray) preferred.
  - Avoid oral estrogen as it increases hepatic angiotensinogen.
  - Vaginal estrogen – safe at all BP levels.
- Select an appropriate regimen
  - If uterus absent (except in hysterectomy due to endometriosis) – estrogen-only HRT.
  - If uterus present – combined regimen of estrogen and micronized progesterone.
- Initiate and monitor :
  - Baseline – record BP, BMI, Lipid Profile, Glucose.
  - After 6 – 12 weeks – recheck BP, assess symptoms.
  - Every 6 – 12 months – monitor BP, review HRT need, breast exam, and endometrial health.
- Continue/adjust/stop
  - BP Stable and symptom improved – continue HRT in lowest effective dose.
  - Mild BP increased – adjust antihypertensive / lower estrogen dose./
  - Persistent uncontrolled BP – discontinue HRT.
- Adjunct measures
  - Maintain a healthy weight, diet, and exercise.
  - Limit salt and alcohol intake.
  - Control Lipids and Glucose.
  - Consider non-hormonal options (SSRI, Gabapentine, Clonidine) if HRT is contraindicated.

Effect of HRT on Diabetes

- Glucose Metabolism :
  - Estrogen improves carbohydrate, insulin metabolism, reducing fasting glucose and insulin levels, improves insulin clearance and insulin sensitivity.
  - Estrogen enhances insulin secretion, glucose disposal, and increases the effectiveness of glucose and may also reduce the risk of type 2 Diabetes Mellitus by 30%.
- Lipid Profile
  - Estrogen raises HDL and lowers LDL and total cholesterol and thus controls dyslipidaemia.
  - Oral estrogen can raise triglycerides; transdermal estrogen has less effect.
  - For the progesterone part – dydrogesterone and natural micronized progesterone have a neutral effect on lipid profile.

JAYPEE BROTHERS

- Body fat distribution and waist circumference:
  - Estrogen (through estrogen receptor alpha) prevents postmenopausal increase in central (android) fat and helps maintain gynecoid fat distribution – thus improves insulin resistance and reduces waist circumference and also inhibits the interactions among abdominal adiposity, hormones, insulin resistance, hyperinsulinemia, blood pressure and atherogenic lipid profile.
  - Thus, better control of type 2 Diabetes Mellitus is possible while on HRT.
  - There is a lack of evidence on the use of MHT in type 1 Diabetes.

PREFERRED REGIMENS

- Transdermal estrogen preferred for glucose metabolism, lipids and thrombotic risk.
- In the presence of an intact uterus, add micronized progesterone or dydrogesterone for their neutral effect on lipid profile.

MONITORING

- Regular checkup of BP, Glucose, Lipids and HBA1C needed.
- Estrogen/Progesterone levels are not traditionally measured. The improvement in the Menopause Rating Scale indicates adequate response.

KEY TAKEAWAYS

- HRT can be safely used in post menopausal women with controlled hypertension or type 2 Diabetes Mellitus, considering appropriate dose, regimen, duration, route and time of initiation.
- Regular monitoring is needed.
- Estrogen in HRT modestly improves glucose metabolism, insulin metabolism and lipid profile – especially with transdermal estrogen along with natural micronized progesterone or dydrogesterone due to their lipid neutral status.
- Individualization with shared decision-making is recommended.
- Cardiovascular and thrombotic risk must always be assessed before initiation and during therapy.

SUGGESTED READING

1. American Diabetes Association (ADA) 2025 Standards of Care.
2. European Menopause and Andropause Society (EMAS) 2022 Position Statement.
3. Hugh S Taylor, Lubna Pal, Emre Seli, Speroff's Clinical Gynaecologic Endroclinology and Infertility, 9th Edition : 798.
4. Mauvais-Jarvis F, Manson JE, Stevenson JC, Fonseca VA. Menopausal Hormone Therapy and Type 2 Diabetes Prevention: Evidence, Mechanism and Clinical Implications. Endocr Rev. 2017;38(3):173-188.
5. Meeta Digmurti L, Vaze N et al., Clinical Practice Guidelines of Menopause, IMS, 2020.

JAYPEE BROTHERS

6. Mueck AO, Seeger H. Effect of Hormone Therapy on BP in Normotensive and Hypertensive Post Menopausal Women. Maturitas. 2004;49(3):189-203.
7. N Aggarwal, B Shah, R Bansal ; Menopause Hormone Therapy in Comorbidies, Meeta's Clinical update on MHT (2024).
8. Stevenson JC. Best Practice & Research Clinical Obstetrics and Gynaecology 23 (2009):109–120.
9. The North American Menopause Society (NAMS) 2023 Guidelines.

JAYPEE BROTHERS

for detailed information on obstetrics & gynecology books, visit our website www.ejaypee.com, for detailed information on obstetrics & gynecology books, visit our webs

Manual on

Practical Points in Treatment of Menopause

Shelving Recommendation
OBSTETRICS & GYNECOLOGY
ISBN 978-93-7545-181-5
9 789375 451815

Buy from ejaypee
JAYPEE BROTHERS