Guest Editorial II

CARDIOVASCULAR AND NEUROLOGICAL FUNCTION AT MENOPAUSE

Jaideep Malhotra

Ruchika Garg

Cognitive Changes after Menopause

The brain is an important target organ for estrogen, estrogen enhances synaptic plasticity, neurite growth, hippocampal neurogenesis and long-term potentiation involved in episodic memories. Estrogen influences brain function through effects on vasculature and immune system. It has proinflammatory and anti-inflammatory actions. Estrogen protects against neural injury and apoptosis. It influences several neurotransmitter systems. Cholinergic neurons in forebrain express estrogen receptors. These neurons are affected by Alzheimers pathology. Prothrombotic properties of some estrogen may contribute to cerebrovascular disease.

The cognitive function changes like speech, complex problem solving delayed recall and mental flexibility are individualized. Those in their youth had performed best tend to decline relatively less.

Menopausal lady with cognitive disorder should be evaluated with proper history including history of medical disorder, social, occupational, drug abuse, medication and family history. History of neurological disorder, trauma, diabetes and HIV. History of violence is also crucial.

Depression

Evaluation of depression can be done by measuring Beck Depression Inventory. Twenty-one statements are assessed-sadness, pessimism, failure, dissatisfaction, guilt, self dislike, suicidal, social withdrawal, etc.

Hormone Replacement Therapy and Cognition

Natural menopause is not associated with substantial cognitive change. Evidence suggests that estrogen replacement therapy has little and no substantial effect on midlife cognition after natural menopause, but if initiated after surgical menopause may improve memory and has short-term cognitive benefit in younger women but in older postmenopausal HT started in late postmenopausal women it does not improve cognition.

Although HT may have a positive effect on mood and behavior, HT is not an antidepressant and should not be considered as such. Evidence is insufficient to support HT use in the treatment of depression (North American Menopausal Guideline position statement 2012).

Role of Progesterone

Although progesterone is neuroprotective in some studies, limited data suggest that progesterone component of HRT may affect cognition deleteriously.

SERM and Cognition

In multiple outcomes of raloxifene, trial raloxifene had no effect on overall cognitive function but at higher doses it reduced the likelihood of development of cognitive impairment. Tamoxifen might impair cognitive function according to sparse data.

Menopause and Cardiovascular Disease

Menopause is a risk factor for cardiovascular disease as estrogen withdrawal has a detrimental effect on cardiovascular function and metabolism. The menopause is associated with changes in body fat distribution from a gynoid to an android pattern, reduced glucose tolerance, abnormal plasma lipids, increased blood pressure, increased sympathetic tone, endothelial dysfunction and vascular inflammation.

The incidence and prevalence of coronary heart disease is higher in postmenopausal women than in premenopausal women. Whether this higher risk is due to ageing or a consequence of menopause or both is a matter of debate for years.

Mathews et al (2009) studied the participants of Study of Women's Health Across Nation (SWAN) and concluded that only total cholesterol. Low-density lipoprotein cholesterol (LDL-C) and apolipoprotein B increases in the 1 year interval before and after the final menstrual period. The greatest increase in high-density lipoprotein cholesterol (HDL-C) and apolipoprotein A1 occurred before the 1 year interval surrounding the final menstrual period. Other risk factors changed in linear pattern consistent with chronological aging: triglycerides, lipoprotein(a), insulin and systolic blood pressure increased; diastolic blood pressure, tissue plasminogen activator antigen, fibrinogen and creactive protein did not change; glucose and plasminogen activator inhibitor decreased overtime. So, the take home message is that risk factors do change around the time of menopause some related to chronologic aging and some related to menopausal transition.

Hormone Therapy

Recent scientific studies do not support the use of hormone therapy for prevention or treatment of cardiovascular disease and should not be regarded as a substitute for antihypertensive treatment.

Observational studies and randomized clinical trials suggest that hormone replacement therapy (HRT) started soon after the menopause may confer cardiovascular benefit.

Some progestins have additional, specific, beneficial effects on blood pressure and plasma lipid and plasma glucose profiles like drospirenone counteract the water- and sodium-retaining effects of the estrogen component of HRT which may otherwise result in weight gain and raised blood pressure. As a continuous combined HRT with 17 beta-estradiol, drospirenone significantly reduces blood pressure in postmenopausal women with elevated blood pressure, but not in normotensive women.

In a woman aged <60 years, recently menopausal, with menopausal symptoms and without symptomatic cardiovascular disease, the initiation of HRT does not cause early harm, and possibly confers long-term cardiovascular benefit.

If a woman is at increased global cardiovascular risk, HRT is safe to use in the younger woman with indications.

A woman aged >60 years should be counselled on the potential benefits and risks of HRT.

Neither ET nor combined EPT increase the risk of cardiovascular risk in healthy women between 50 and 59 years. Risk for stroke may be increased; however this is rare in younger age group. While the overall risk associated with the use of HT in healthy women less than 59 years is low. Long-term HT or HT initiated in older women carrires greater risk (North American Menopausal Guideline position statement 2012).

Lifestyle interventions, body weight control, blood pressure monitoring and lipids and glucose control are important to maintain a woman at low risk. So, it is prudent to increase the frequency of risk factor monitoring during this time to identify women who may benefit from pharmacologic management beyond lifestyle modification.

In postmenopausal women, treatment of arterial hypertension and glucose intolerance should be priorities.

BIBLIOGRAPHY

1. Rosano GM, Vitale C, Marazzi G. Menopause and cardiovascular disease: the evidence. Climacteric 2007 Feb;10(Suppl 1):19-24.
2. Victor W. Cognitive changes after menopause: influence of estrogen. Clin Obstet Gynecol 2008;51(3):618-626.

Jaideep Malhotra MBBS MD (Obs and Gyn)
FICMCH FIAJAGO FICOG MASRM FICMU
Consultant IVF Specialist
Rainbow Hospital
Agra, Uttar Pradesh, India

Ruchika Garg MS FICMCH
Assistant Professor
Department of Obstetrics and Gynecology
SN Medical College, Agra, Uttar Pradesh, India
e-mail: ruchikagargagra@gmail.com