

Editorial



Searching for Risk of Atrial Fibrillation in Surgical Early Menopause: Assessment of the Electromechanical Property and Function of the Left Atrium

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► See the article “Evaluation of Left Atrial Electromechanical Delay and Left Atrial Phasic Functions in Surgical Early Menopause Patients” in volume 27 on page 137.

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Conflict of Interest

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It is controversial whether an association exists between menopause and incident cardiovascular disease (CVD) beyond age and cardiovascular risk factors, and the underlying mechanisms are poorly understood. Numerous reports,¹⁻⁴⁾ with some contradictory exceptions,⁵⁾ document elevated the risk of CVD in women with early natural or surgical menopause. Several studies suggested that the menopause due to primary ovarian insufficiency and resultant early menopause carries increased cardiovascular risk.⁴⁾ Some suggested that women exhibited rapid increases in metabolic syndrome severity during the menopausal transition. These findings may thus have implications regarding the timing of CVD risk relative to menopause.⁶⁾ On the contrary, there was no significant difference in the statuses of CVD risk after menopause in a few studies. In a study, hysterectomy with or without ovarian conservation is not a key determinant of CVD risk factor either before or after elective surgery in midlife.⁷⁾ Similar results were demonstrated when comparing women who reached natural menopause with those who underwent surgical menopause of hysterectomy and oophorectomy.⁸⁾

Atrial fibrillation (AF) is a huge medical burden with the aging population. It is most commonly a disease of cardiovascular aging, high blood pressure and multiple factors such as cardiovascular events, increased inflammation and thrombosis. Hormonal dysregulation could be expected to link earlier onset of menopause with increased risk of AF.⁹⁾ On the contrary to the expectations, in a large prospective study, menopausal age was not significantly related to incident AF, while the use of estrogen monotherapy was associated with increased AF risk. This suggests a pathophysiological link between unopposed estrogen exposure and AF in women.¹⁰⁾ Incident AF was modestly elevated in hysterectomized women randomized to postmenopausal estrogen-alone, and the pooled group randomized to estrogen-alone or estrogen plus progestin.¹¹⁾ In one moderate sized, community-based sample, menopausal age was not significantly increasing AF risk.¹²⁾

Impaired electromechanical property of left atrium (LA) is another predictor of the development of AF. Enlarged LA volume and a prolonged electromechanical conduction time indicated significantly depressed atrial conduction in enlarged LA in patients with recurring

AF, and can predict 6-month maintenance of sinus rhythm after electrical cardioversion.¹³⁾ Age-related changes in diastolic indices were gender specific. In the elderly population, diastolic function deteriorated more significantly in the female gender than in the male gender. These results may explain the relatively higher incidence in elderly females among patients with diastolic heart failure and higher cardiovascular mortality in the female gender.¹⁴⁾

In this issue of *Journal of Cardiovascular Imaging*, Akcay et al.¹⁵⁾ assessed the LA electromechanical delay and LA phasic function in the patient with surgical early menopause and compared them with the control group. Compared to natural menopause, surgical menopause lead to larger changes as peripheral aromatization to estrogen is limited.¹⁶⁾ Authors analyzed with echocardiography for the atrial electrical delay and electromechanical functions for the early detection of potential AF development. Surgical early menopause patients demonstrated an electromechanical delay of LA and impaired LA function. With echocardiographic assessment, patients with potentially higher risk of AF development were identified. These might be linked to a previous study, which demonstrated larger LA volumes and lower LA mechanics in women than men. Women also showed an increased risk of embolic stroke.¹⁷⁾

The significance of the noted study is limited for several reasons. It proposed the potential mechanism for AF development, however, the actual incidence of it was not included. A small number of patients and short duration of follow-up restricted level of its statistical power. However, the authors contributed to the potential mechanism of AF in early surgical menopause women, which is the field of limited investigations. Hopefully, there will be further studies to elucidate the link of sex-specific differences in AF and its mechanism using echocardiography.

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