



Vasomotor symptoms in women and cardiovascular risk markers: systematic review and meta-analysis

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Background

- » Menopause has been linked to increased risk of cardiovascular disease among older women.
 - » During their menopausal transition, women commonly report vasomotor symptoms.
 - » A growing body of evidence suggests a link between vasomotor symptoms and cardiovascular risk.
 - » Interpretation of the often conflicting findings remains a challenge.
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Objective

- » To synthesize all available evidence of vasomotor symptoms in relationship with various conventional cardiovascular risk factors such as systolic and diastolic blood pressure, hypertension, blood lipids, body mass index and measures of subclinical atherosclerosis.
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Methods

- » The review was conducted using a predefined protocol and in accordance with the PRISMA and MOOSE guidelines.
 - » Relevant studies, published before February 12th, 2015 were identified by two independent authors, through electronic searches without language restriction in MEDLINE, EMBASE, and Web of Science databases.
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Inclusion criteria

- » Observational or interventional studies in humans.
 - » Reporting on associations of vasomotor symptoms (defined as hot flushes and/or night sweats).
 - » With cardiovascular risk factors including systolic blood pressure, diastolic blood pressure, hypertension, serum total cholesterol, low-density lipoprotein, high-density lipoprotein, triglycerides, BMI, coronary artery calcification and carotid intima-media thickness.
 - » In peri-menopausal, menopausal, or postmenopausal women.
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Results

- » 13,636 potentially relevant citations were retrieved from electronic searches.
 - » After the initial screening based on titles and abstracts, 103 articles in full text were extracted for further evaluation.
 - » In the full-text assessment, 16 of these articles and 11 unique studies met our inclusion criteria and were included.
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Vasomotor symptoms and blood pressure

- » Women who experienced hot flushes or night sweats compared to those who did not, tended to have a significant higher overall level of systolic blood pressure.
 - » Women reporting night sweats compared to those without had a significant higher diastolic blood pressure.
 - » No significant increase in diastolic blood pressure was found for women suffering hot flushes.
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Vasomotor symptoms and hypertension

- » Women who reported to have hot flushes tended to have higher risk of having hypertension.
 - » Results on night sweats were based on one study and showed higher odds of having hypertension for women reporting night sweats compared to those without.
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Vasomotor symptoms and total cholesterol

- » Night sweats were associated with significant increased total cholesterol levels compared to women with no symptoms of night sweats.
 - » Results on hot flashes were based on one study and showed significant higher levels of total cholesterol in women who experienced hot flashes compared to those who did not.
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Vasomotor symptoms and other blood lipids

- » Results on other blood lipids were based on one study and showed that higher levels of LDL-cholesterol, HDL-cholesterol and triglycerides were found in women experiencing hot flushes compared to those without.
 - » Women who reported night sweats compared to those who did not, had a significant higher levels of LDL-cholesterol.
 - » No significant increase of blood lipid levels was found for HDL- cholesterol and triglycerides in women reporting night sweats.
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Vasomotor symptoms and BMI

- » There was a significant increase in the levels of body mass index of women experiencing night sweats compared to women without.
 - » One study examined the association between presence of hot flushes and BMI and showed women who experienced hot flushes to have higher BMI.
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Vasomotor symptoms and BMI

- » There was only one study to report on the severity of vasomotor symptoms combined in relation to BMI and showed that the severity of vasomotor symptoms was associated with higher levels of BMI.

Vasomotor symptoms and coronary artery calcification

- » All studies reporting on the association of hot flushes or night sweats and coronary artery calcification were consistent in showing no association.

Vasomotor symptoms and carotid intermedia thickness

- » One study showed no cross-sectional association between severity of hot flashes or night sweats and carotid intermedia thickness (IMT).
 - » Another study showed a positive cross-sectional association between number of days hot flashes or night sweats and IMT but no association with the progression of IMT.
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Conclusions

- » Women with vasomotor symptoms have an **unfavorable cardiovascular risk profile** compared to women without vasomotor complaints.
 - » Vasomotor symptoms are positively associated with systolic and diastolic blood pressure, total cholesterol levels and body mass index.
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Conclusions

- » There is no association between vasomotor symptoms in women and **measures of subclinical atherosclerosis**.
 - » The available studies on vasomotor symptoms and cardiovascular risk markers are generally **limited** and somewhat diverse.
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