Cardiovascular Risk Factors in Middle Aged Women with Special Emphasis on Effects by Sex Steroids

Women’s Health in the Lund Area (WHILA) Study

AKADEMISK AVHANDLING

Som för avläggande av doktorsexamen i medicinsk vetenskap i ämnet gynäkologi vid Medicinska fakulteten vid Lunds Universitet kommer att offentligen försvaras på Kvinnokliniken, föreläsningssalen, plan 3, Universitetssjukhuset, Lund
Fredagen den 19 maj 2006, kl 13:00

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## Abstract

Cardiovascular disease (CVD) is multifactorial, and the risk of a cardiovascular event depends largely on the occurrence of one or several risk factors. In addition when comparing to men, women have a unique risk factor with menopause. The aim of this study was to delineate cardiovascular risk factors and their interrelations particularly pertaining to the influence by sex hormones and lifestyle in a population based cohort of middle aged women.

A total of 6917 out of 10766 women aged 50-59 years living in the Lund area of southern Sweden completed a generic questionnaire and underwent physical examinations and laboratory assessments. According to the hormonal status, 492 (7.1%) were classified as pre-menopausal with regular menstruation, 3600 (52.1%) were post-menopausal without hormone therapy (HT), and 2816 (40.8%) were postmenopausal women with use of HT. Women at or above defined cut-off limits were considered positively screened (n=3593) for the metabolic syndrome. All of them were invited to undergo an oral glucose tolerance test, out of which 2923 women accepted.

Use of HT was accompanied by a lower risk profile for CVD and also by several factors indicating a different lifestyle. The serum lipid profile as influenced by lifestyle factors was modified by the hormonal situation. Compared to the postmenopausal women without HT use, the use of HT contributes to fewer “negative” effects by lifestyle factors on serum lipids.

Effects by sex steroids on cardiovascular risk factors seem to be different in women with or without features of the metabolic syndrome. The risk of having a pathological glucose load was lower in current combined transdermal versus oral users of estradiol + norethisterone. The transdermal HT could be regarded as first line treatment in women at risk of developing diabetes.

One hundred and four postmenopausal women (1.6%) reported cardiovascular events, two controls for each case were selected (n=208) matched for potential risk factors. Several health hazards as well as somatic and psychological symptoms were more common in subjects with CVD. Hence women with CVD should be entitled to extended medical attention.

## Key words:
- Cardiovascular risk factors, hormone therapy, lifestyle factors, sex hormones, middle-aged women

## Classification system and/or index terms (if any):

## Supplementary bibliographical information:

<table>
<thead>
<tr>
<th>Language</th>
<th>ISBN</th>
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</thead>
<tbody>
<tr>
<td>English</td>
<td>91-85481-97-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ISSN and key title:</th>
<th>Number of pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1652-8220</td>
<td>190</td>
</tr>
</tbody>
</table>

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Date May 19, 2006