

Treatment of hypertension in women and men

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Avhandlingen baseras på följande delarbeten.

- I Ljungman C, Mortensen L, Kahan T, Manhem K. Treatment of Mild to Moderate Hypertension by Gender Perspective: A Systematic Review.
J Womens Health 2009;18:1049-1062.
- II Ljungman C, Collén A-C, Manhem K. Swedish Hypertension Open care retrospective study in men and Women (SHOW).
J Hum Hypertens 2011;25:32-7.
- III Ljungman C, Kahan T, Schiöler L, Hjerpe P, Hasselström J, Wettermark B, Boström K, Manhem K. Gender differences in antihypertensive drug treatment: Results from the Swedish Primary Care Cardiovascular Database (SPCCD).
Submitted
- IV Ljungman C, Kahan T, Schiöler L, Hjerpe P, Wettermark B, Boström K, MAnhem K. Antihypertensive treatment and control according to gender and psychosocial factors: the Swedish Primary Care Cardiovascular Database (SPCCD).
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TREATMENT OF HYPERTENSION IN WOMEN AND MEN

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Abstract

Aims: The overall aim of the thesis was to investigate antihypertensive treatment in women and men. First, the aim was to analyze the scientific support for treatment recommendations in women and men. Second, the aims were to study achieved blood pressure levels and evaluate differences in antihypertensive treatment in women and men with new-onset and current hypertension and further to study if guidelines were pursued. Finally, the aims were to study the influence of comorbidities and psychosocial factors on antihypertensive treatment and achieved target blood pressure in women and men.

Methods: Paper I is a review based on "Moderately elevated blood pressure, a systematic literature review" by the Swedish Council on Technology Assessment in Health Care (SBU). Paper I analyses the proportion of women included and gender specific data on blood pressure reduction and outcome. Paper II is a retrospective study carried out in primary health care including patients with newly diagnosed hypertension, investigating blood pressure levels, antihypertensive treatment and time to satisfying blood pressure control in women and men. Paper III and IV are retrospective cohort studies carried out in the Swedish Primary Care Cardiovascular Database (SPCCD) including patients with ongoing hypertension. These studies investigate blood pressure levels, achieved target blood pressure, antihypertensive treatment, comorbidities and psychosocial factors in women and men with hypertension.

Results: In Paper I, two studies (VALUE and ALLHAT) showed a better blood pressure reduction with calcium channel blockers compared to angiotensin receptor blocker (ARB) and angiotensin converting enzyme inhibitor (ACEI) and this was more pronounced in women. In ALLHAT the calcium channel blocker was superior to both the diuretic and ACEI in reducing stroke incidence in women but not in men. In VALUE, calcium channel blocker-based therapy was superior to the ARB-based therapy in reducing the composite endpoint of cardiac morbidity and mortality in women but not in men ($p<0.05$). In Paper II, 332 male and 334 female patients were included. There was no gender difference in systolic blood pressure (SBP) before and after treatment. Women had a lower diastolic blood pressure (DBP) before and after intervention. There was no difference between the proportion of women and men reaching the predefined goal of treatment. In Paper III and IV, 40 825 patients with current hypertension were included. In patients older than 69 years, women had a higher SBP, except in patients of 90 years of age or older. Achieved DBP dropped with age in both genders and was lower in women in all age groups except in patients 90 years or older. Achieved SBP was higher in women in all subgroups of comorbidities except in patients with asthma. Fewer women than men reached target blood pressure ($p<0.0001$). Women were more often prescribed thiazide diuretics, loop diuretics and beta receptor blockers and men were more often prescribed ACEI, and this was consistent also after adjusting for age, comorbidities and smoking. The predominant use of ACEI and calcium channel blockers in men was not influenced by education, country of birth and psychiatric disorder. However, in well-educated patients women were not prescribed diuretics and beta receptor blockers more often than men. In women, education and psychiatric disorder was associated with reaching target blood pressure.

Conclusion: Women and men are treated with different antihypertensive drugs and this is not fully explained by differences in comorbidities. Women with diabetes mellitus are not treated with ACEI or ARB to the same extent as their male counterparts. Women with hypertension reach target blood pressure less often than men and women have a higher achieved SBP in all subgroups of concomitant cardiovascular disease. Higher educational level and psychiatric disorder are associated with reaching target blood pressure in women. Efforts should be made to emphasize the risk evaluation in women with hypertension and concomitant cardiovascular disease to improve blood pressure control.

Keywords: Hypertension, antihypertensive treatment, blood pressure, gender

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