

## High prevalence of uncontrolled and undetected hypertension in a general elderly population in Eastern Germany

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**Background** Hypertension, defined as a blood pressure > 140/90 mmHg, is an established risk factor for cardiovascular disease. However, the prevalence of undetected or uncontrolled hypertension is often unknown (even for populations at high risk). Several population-based studies [2], [3], [4], [5] have reported high prevalences of hypertension and high degrees of insufficient treatment and awareness, indicating an east-west and a north-south gradient of regional prevalence disparities.

**Objectives** To assess the prevalence of uncontrolled and of unknown hypertension in an elderly East German population in different age-sex groups.

**Design and Methods** Data of a cross-sectional, population-based examination (the CARLA Study) [1] comprising 1779 men and women aged 45-83 years were analysed. Systolic and diastolic blood pressure (BP) was measured by a standard procedure using the automated OMRON 705 CP. Self-report of physician-diagnosed hypertension and intake of antihypertensive drugs was recorded by standardised interview.

For the present analysis, hypertension was defined as elevated systolic or diastolic blood pressure ( $\geq 140$  or 90 mmHg resp.), or use of antihypertensive medication during the preceding week (identified by central pharma number and drug package ATC codes), or physician diagnosed hypertension. Prevalence of hypertension, treatment and patient awareness were calculated according to age and sex strata.

**Results** Of all participants, 57.7 % presented with a systolic BP of  $\geq 140$  or diastolic BP  $\geq 90$ ; 28.8 % showed blood pressure values of 160/95 mmHg or higher in our medical examination. Seventy-eight percent were hypertensive according to blood pressure measurement, use of antihypertensive medication and/or self-reported physician-diagnosed hypertension (82.1 % of men, 75.2 % of women). As expected, the prevalence of hypertension increased with age. Ninety-three percent of participants aged 75 and older were hypertensive. Of all hypertensive subjects, 29.9 % were untreated, 43.2 % treated but uncontrolled, and 26.9 % treated and controlled. About 70 % were aware of their hypertension, while 20 % were neither aware nor treated.

The prevalence of self-reported physician-diagnosed hypertension did not differ much from the prevalence of hypertension defined as elevated blood pressure or use of medication. However, while few people reported to be hypertensive in spite of normal blood pressure without antihypertensive treatment, many were not aware of their hypertension. Ten percent of subjects classified as hypertensive did already receive antihypertensive drugs but claimed they did not have hypertension.

Our analyses show that the portion of controlled hypertension was higher in women than in men, while the overall share of untreated men with high blood pressure was higher (Tab.1).

Treatment of hypertension among hypertensive subjects	Men		Women	
	N	%	N	%
Untreated	263	33.0	157	25.8
Treated and controlled	183	23.0	195	32.0
Treated but uncontrolled	350	44.0	257	42.2
Total	796	100.0	609	100.0

Tab. 1: Treatment and control of hypertension in men and women

More women than men were aware that they had high blood pressure. The proportion of men unaware that they were already treated with antihypertensives was higher than among women. The prevalence of untreated hypertension decreased with age, while treated but uncontrolled hypertension increased ( $> 50$  % of all hypertensives in the highest age group). The prevalence of undetected hypertension was highest in younger subjects ( $< 55$  years). On the other hand, older people often seemed to be unaware of the fact that they were already treated with antihypertensives.

The prevalence of untreated hypertension among hypertensive subjects was highest in men aged 45-55 years (61.7 %) and lowest in men and women aged  $\geq 75$  years (12.6 %). In both sexes, the portion of uncontrolled patients among hypertensive subjects increased with age. In men, this appears to be related to the decreasing number of untreated hypertensives. In women, the degree of awareness was less age-dependent than in men. The number of men unaware of their hypertension in spite of the fact that they received antihypertensives was highest in the highest age group.

**Conclusion and Discussion** In this elderly population, there was a high prevalence of undetected, untreated and uncontrolled hypertension. In general, it seems that antihypertensive management leads to better control in women than in men. The results are consistent with studies such as the Three Cities Studies [3], the EPIC-Study [4], the KORA Study, the SHIP Study [5] and the PAP Study [2]. However, in our study the prevalence of hypertension was higher in most age groups.

There is an urgent need to develop public health strategies to increase awareness of the public health relevance of uncontrolled hypertension both in the population and among physicians in order to prevent sequelae such as cardiovascular diseases.

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