

## How do I treat hypertension in the elderly?

The basic principle is that hypertension should be treated the same way in the elderly as in the younger. However, there are some special features.

### Diagnosis

The limits of blood pressure for the diagnosis of arterial hypertension are the same in the elderly as in the young. It is important to denote that a high systolic blood pressure is sufficient for diagnosis; the diastolic blood pressure may be normal. Most elderly people (about 80-90%) have an isolated systolic hypertension (i.e. only the systolic blood pressure is increased, while the diastolic is normal). This is connected with pathophysiology, the main cause of arterial hypertension in the elderly being the increasing stiffness of the vascular wall by arteriosclerosis. This reduces the windkessel function of the large vessels, which increases the systolic blood pressure.

### Prevalence

The prevalence of arterial hypertension increases with age, because the systolic blood pressure increases during life time as a result of progressive arteriosclerosis, and at the same time the limits of blood pressure for the diagnosis of arterial hypertension remain the same. Of course, it may be questionable, if 70% of the population at the age of 70 is diagnosed with a disease. However, because the increased systolic blood pressure is associated with increased cardiovascular events such as myocardial infarction or stroke, which both can have deleterious consequences for quality of life and physical functioning, it is correct to keep the blood pressure limits for the elderly on the same level as in the young.

### Treatment

#### *Target blood pressure*

Basically, the target blood pressure is the same as for the young (<140/90 mmHg). The benefit of a blood pressure reduction is even greater in the elderly than in the young (that is, a blood pressure reduction by 10 mmHg in elderly people prevents more dangerous cardiovascular events than in young people). However, the target blood pressure has to be determined on an individual basis. In principle, even elderly people at the age of 100 years qualify for therapy, because their mean remaining life expectancy is still sufficiently long that a pressure reduction can be of great benefit. However, biological diversity increases with age. There is the eighty-year-old, who will live for 20 more years, and the eighty-year-old, who does not survive the next three months. The following applies: the shorter the remaining life expectancy, the higher the target blood pressure values. An increase of the target blood pressure is justified, if the remaining life expectancy is 2 years or less.

#### *Lifestyle measures*

Lifestyle measures for the treatment of arterial hypertension are also effective in the elderly. In particular, the reduction in salt intake is more effective than in young people. A weight loss is also effective. The problem here is, however, that weight loss is always associated with a decrease in muscle mass, which can often not be recovered in the elderly. Therefore, a weight loss is only recommended for old patients with arterial hypertension, who can increase physical activity during the weight loss.

### ***Drug therapy***

Because the cardiovascular risk is very high in elderly people and the possibilities for lifestyle measures are rather limited, it is advisable to start drug therapy rather sooner than later. Because comorbidities affecting the choice of antihypertensive drugs increase with age, the choice of antihypertensive drugs is often influenced by these comorbidities. For example, in many elderly people, a beta-blocker, which is currently no longer among the first-line antihypertensive drugs in young people, is a good antihypertensive drug in the elderly, if he / she has coronary heart disease.

### ***Adverse drug reactions***

Some peculiarities regarding adverse drug reactions must be considered. A particularly important adverse drug effect is orthostatic hypotension. It becomes increasingly frequent with increasing age, because the physiological countermeasures decrease. Orthostatic hypotension is, at the same time, particularly deleterious in the elderly, especially when there is osteoporosis; the fracture risk is very high. Blood pressure lowering can lead to orthostatic hypotension. Paradoxically, however, blood pressure lowering can also improve orthostatic hypotension (i.e., when blood pressure in lying or sitting position is low, it cannot sink as deep as when it is high). In elderly patients, the most important thing is to measure blood pressure in the lying / sitting position as well as 1 and 3 minutes after standing up, in order to detect or exclude orthostatic hypotension. If orthostatic hypotension is present, the target blood pressure values sometimes have to be increased.

Another important problem with elderly people is that they already have arteriosclerotic vascular disease. When blood pressure is lowered before a stenosis, it sinks even more strongly behind the stenosis. Therefore, it is important to monitor the organ functions, especially after an optimization of drug therapy to lower blood pressure. This includes the renal function, but the brain function, which should be controlled by suitable tests, is just as important.

### ***Concluding remarks***

Antihypertensive treatment is very effective in the elderly (more effective than in young people) and very safe, if adverse drug reactions are taken into consideration. Today's antihypertensive drugs are generally very well tolerated and interact only little with other drugs. There is no good reason a priori, not to treat arterial hypertension in the elderly.