Masked Hypertension

Topics: Hypertension
Authors: Clement D.

Abstract
There have been, in recent years, several divisions and subdivisions in the classification of Hypertension. Recently, a new entity has been described as normal blood pressure during consultation and elevated values outside of it. As such findings often escape the attention of the physician, it has been called “Masked Hypertension”. All evidence indicates that masked hypertension carries a heavy weight in long term prognosis.

The generally accepted definition of masked hypertension has been given by the recently deceased Professor Tom Pickering; in the office, blood pressure should remain at or below 140/90 mm Hg while outside daytime ambulatory pressure averages at 135/85 mm Hg or higher (1). As this is the opposite of white coat hypertension, some people use the term “reverse with coat hypertension” or “isolated ambulatory hypertension”.

1) Prevalence and type of patients
Different figures are given in the studies on ambulatory blood pressure. In the PAMELA study a prevalence of 9% was given (2), in Office versus ambulatory blood pressure study (OvA) on treated hypertensive patients (3) the figure was slightly lower (7.28%). Tom Pickering used the figure of 10% in the general population (4), which clarifies that masked hypertension by far, is not a seldom finding.

In contrast to white coat hypertension, masked hypertension is seen much more frequently in younger patients, and moreso in males than in females. Most patients live in stressful conditions, have a high activity level during the day, they can be smokers, and may have poor drinking habits and there may as well be a link to obesity and metabolic factors. Thus: patients at increased risk; masked hypertension further adds to this high risk score.

Noteworthy is that the same phenomenon seems to exist in the real hypertensive population, even in treated patients as the OvA study has shown (3). As blood pressure is elevated during a large part of the day, it seems logical that it can impact long term prognosis.

2) Prognostic implications
Cross sectional analysis of several study results, re-analysed for this purpose have indicated that patients with masked hypertension often present with higher left ventricular (LV) mass, often comparable to sustained hypertension (2) and clearly more pronounced than white coat hypertensive patients. Such correlation was also found in treated hypertensive patients (3). Long term studies (2;5-6) clearly pointed toward a worsened prognosis with almost double the number of events than in normotensive subjects; again it was shown that prognosis of masked hypertension clearly is worse than that of white coat hypertension. There seems to be a stepwise increase in cardiovascular events when normotensives, white coat hypertensives and masked hypertensive patients are compared.

3) Mechanisms and treatment
There is no clue yet as to what the exact mechanism leading to masked hypertension would be. It clearly occurs in patients with a busy and often stressful life style. Some studies point toward a particular psychological profile (7). Likely, the sympathetic system plays a role but future studies are needed to clarify this point.
There is in the 2007 ESC-ESH guidelines no specific advice for treating this new type of elevated blood pressure. However, the first step is to manage total cardiovascular risk in such patients. They should be controlled at regular intervals both in terms of blood pressure evolution as much as in terms of lifestyle and all specific risk factors like cholesterol, weight, nicotine.

It is not clear yet whether any of the available antihypertensive drugs would control blood pressure better than others. One should re-check ambulatory blood pressure under treatment at regular intervals and focus on duration of the anti hypertensive over daytime. Perhaps a 24 hour antihypertensive effect is not needed in these patients; on the other hand, there is some evidence that their office blood pressure may range in what is called “high normal” values; if so, attention should also be given to their office pressures.

4) Reflections on this new entity

There is no doubt anymore that this entity does indeed exists, that it has a quite high prevalence and carries an increased risk (8). The entity also exists in the real hypertensive population and is also seen in treated hypertensives. It is seen mostly in younger patients with a high level of daily activity; their total cardiovascular risk is elevated and masked hypertension further increases it. Masked hypertension poses a difficult new challenge to medicine; hypertension is under diagnosed and under treated in general but obviously, even moreso even in this class of patients. Ambulatory Home recordings of blood pressure are the only tools that can help us to come to the diagnosis of masked hypertension. Should we make such recordings in all patients with “high normal values”? in all hypertensives? To check whether management is successful, do we need to re-check ambulatory or home values at regular intervals? Also what to do in an epidemiological context where only a few “office” values are taken, missing all information on daily blood pressure…

Several questions have urgently need to be solved. One point is clearly: patients presenting with masked hypertension carry an increased risk of developing cardiovascular events; as a consequence, strict control of life style is indicated.

References