

HYPERTENSION IN THE ELDERLY

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ABSTRACT

Hypertension is a common finding in the elderly. Appropriate treatment would reduce the incidence of strokes and cardiovascular events. Caution is however indicated in the selection of whom to treat and how treatment is carried out. Treatment should be initiated only if advantages outweigh disadvantages for that individual patient. Treatment has to be tailored to the individual patient.

Keywords: Beneficial effects of treatment, cautious reduction of blood pressure.

Hypertension is a common finding in the elderly. Studies have shown that approximately 40-50% of elderly aged 65-75 years old have a blood pressure of greater than 160/95 mmHg⁽¹⁾. If we use the standard definition of hypertension as BP greater than 160/90 mmHg, the prevalence will be even higher, presenting us with a therapeutic dilemma.

The crucial questions in determining whether treatment is required are: -

- (1) Is hypertension in the elderly normal?
- (2) Is hypertension harmful in the elderly?
- (3) Is treatment beneficial or will it cause more harm?
- (4) When do we start treatment?

In order to answer the above questions, we need to examine the definition of hypertension. What is the normal upper limit of blood pressure? Blood pressure is a continuous variable with no clearly recognisable safe limits. As a definition is necessary, it is based on epidemiological evidence of associated high risk above such limits. An example is the WHO (1978) definition of 160/95 mmHg⁽²⁾ and/or data from studies which show improvement in prognosis in subjects whose blood pressure are treated to "the" level as in the Hypertension Detection and Follow-up programme (1979) definition of 160/90 mmHg⁽³⁾.

(1) Is hypertension in the elderly normal?

Data from studies of Western society indicate a trend for blood pressure to rise with age in both men and women until about

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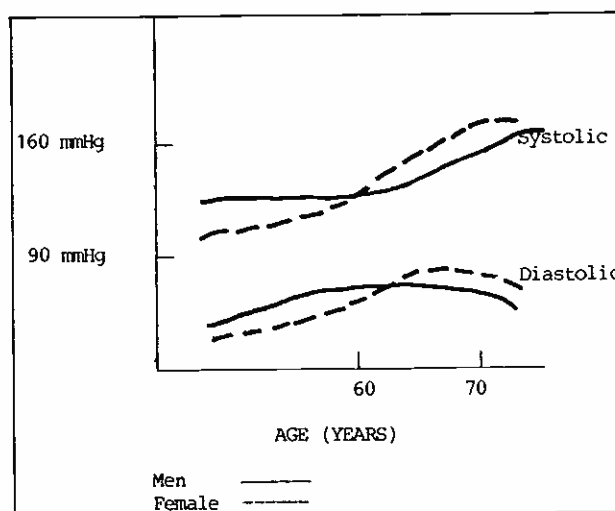
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age 50-60 years old. However, there is a difference between the rising trends in males and females. (Fig 1).

Fig 1 - Distribution of diastolic and systolic blood pressure in men and women according to age.



In men, the systolic pressure will rise continuously until he is about 70 years old when it will peak and then decline.

The diastolic pressure in man peaks earlier at age 50-60 years and then declines.

In women, the blood pressure is lower than their male counterparts until about age 60 years. From here, the blood pressure in the female is higher than in her male counterpart.

Such data will give the impression that rising blood pressure in the elderly is normal. However, some studies have indicated that rising blood pressure in the elderly is pathological.

(1) Master et al (1958)⁽⁴⁾, studied a total of 575 healthy individuals between 65 to 106 years old, and did not show a tendency for blood pressure to increase with age. The subjects studied had no evidence of cardiovascular diseases.

(2) Other surveys such as that reported by Babu et al (1978)⁽⁵⁾ also show similar findings as Master et al.

(2) Is hypertension harmful in the elderly?

One way of assessing the risk of hypertension is to compare

the data on mortality, incidence of cardiovascular diseases and incidence of cerebrovascular accidents between the normal and hypertensive population. Sources of such comparisons are obtained from life insurance statistics, the Framingham Study and others and they have conclusive evidence that⁽⁶⁻¹⁰⁾:

- (a) There is a direct correlation between mortality and blood pressure. This is true both for combined systolic and diastolic hypertension as well as isolated systolic hypertension.
- (b) There is a three fold increase in the risk of stroke occurring in the elderly hypertensive compared with matched age normotensive. As stroke occurs mainly in the elderly, this finding is especially significant.
- (c) The same correlation is also seen in the incidence of cardiovascular events such as congestive heart failure and coronary artery diseases with rising blood pressure. In this instance, the rise in systolic pressure is more significant and constitutes a more definite risk.
- (d) Hypertension in the elderly carries a greater risk as compared with the younger age group. The elderly hypertension is more prone to occurrence of cerebrovascular accidents and cardiovascular incidences as compared to the younger hypertensive with the same level of hypertension.

We shall now consider systolic hypertension.

Systolic hypertension occurs when the systolic pressure is greater than 160 mmHg whereas the diastolic pressure is normal (less than 90mmHg)⁽¹¹⁻¹³⁾. This is a frequent occurrence in the elderly above 65 years.

Although at one time, this was thought to be harmless and even normal, studies now show that the systolic pressure is a better predictor of cerebrovascular accidents and ischaemic heart diseases⁽¹¹⁻¹⁴⁾. An elevated systolic pressure causes an increased strain on the heart and also damages end organs. In the elderly, there is usually very little clinical evidence of end-organ damage until the first manifestation of stroke, coronary artery disease or cardiac failure.

(3) Is treatment beneficial?

As there is clear evidence linking hypertension with an increased mortality rate and morbidity rate, it is hoped that with treatment, we can reduce the incidence of diseases such as stroke, heart failure, ischaemic heart disease and renal impairment.

While there is an absolute indication to treat the severe hypertensives such as those in hypertensive heart failure or hypertensive encephalopathy, the treatment of mild hypertensives is less clear. The MRC trial^(15,16) shows that treatment of mild hypertension does markedly reduce the incidence of stroke, albeit the study was carried out in the younger age group.

In deciding a treatment policy, it must be kept in mind that the result of treatment of a severe hypertensive is more apparent than that of mild asymptomatic hypertensive. However, the treatment of mild hypertension has a greater beneficial effect to society, due to the large numbers involved. Therein lies the rationale of treating mild hypertension.

A series of surveys done on hypertension provides us evidence of benefits of treatment:-

(1) *Veteran Administration Study (1967, 1970, 1972)*⁽¹⁷⁻¹⁹⁾

This was the first study on hypertension to include elderly subjects (21% of study population was above 60 years). This study examined the benefits of treatment in males with diastolic blood pressure between 90-114 mmHg and showed a significant reduction of 50% - 60% morbid events such as stroke, heart failure and deteriorating renal function in all treated age groups, but especially the older age group.

The setbacks of this study, were that

- (1) only male subjects were used
- (2) only 21% of the group was above 60 years old and none was above 75 years of age
- (3) complicated hypertensives were included.

(2) *Australian trial (1979)*⁽²⁰⁻²²⁾

This was a small trial comprising 582 subjects aged between 60 and 69 years old. It studied the effect of treating mild hypertensives and showed evidence of a 39% reduction in the incidence of cardiovascular events and renal complications.

(3) *European Working Party on High Blood Pressure in the Elderly (1985)*⁽²³⁾

This multicentre study compared mortality and morbidity in patients treated with a thiazides/triamterene combination (with or without methyl dopa) or placebo.

The entry criteria into this trial were :

- (1) Age above 60 years old
- (2) Systolic pressure of 160 to 239 mmHg
- (3) Diastolic pressure 90 to 119 mmHg

Results of the study showed :

- (1) a 60% reduction of cardiovascular and cerebrovascular events
- (2) a 9% reduction in total mortality rates (this however was not statistically significant)
- (3) a 27% reduction in cardiovascular mortality, mainly from myocardial infarction and congestive cardiac failure (this was statistically significant).

The benefits of treatment were seen in those up to age of 80 years old.

(4) *Community Trial in treatment of elderly mild hypertensive (1986)*⁽²⁴⁾

The trial was conducted on elderly patients in a primary care setting. This study shows an impressive 42% reduction in fatal and non-fatal stroke as compared with control. There was however no significant reduction in cardiac mortality with treatment.

(4) When do we start treatment?

Although there is sufficient evidence to suggest that treatment is beneficial when the blood pressure is above 160/90 mmHg up to the age of 80 years old, treatment must be tailored to individual needs. Important points to note include:

- (a) a significant number of hypertensives are asymptomatic. Treatment may bring unpleasant side effects.
- (b) treatment is not without danger or risk such as hypotensive stroke, hyperuricaemia, hyperglycaemia, hyperlipidaemia, postural hypotension etc.⁽²⁵⁻²⁷⁾
- (c) in those above 80 years of age, there is as yet no definite evidence of benefit from treatment of hypertension. Careful selection of patients and the weighing of benefits against risk has to be carried out. In the severe hypertensive treatment would undoubtedly be beneficial. It is in treatment of the mild hypertensive that the dilemma occurs.

The approach to the treatment of individual patients should be:-

(a) *Confirmation*

To confirm the diagnosis of hypertension⁽²⁸⁾. It is important to check the blood pressure on at least three different occasions and each time the patient has to be relaxed and at rest. The blood pressure should be recorded in the sitting and standing positions. Postural hypotension, is a fairly common finding in the elderly and should be sought for.

(b) *Investigation*

The purpose is not so much to search for causes of hypertension but rather to :

- (1) assess end-organ function and complications ie. ECG, CXR, renal function tests, etc.
- (2) assess the possible complications of treatment ie. uric acid, blood sugar, lipid profile study and renal function tests.

(c) *Treatment*^(29,30)

(1) It is usually wise to first consider dietary and salt restriction. This measure is, however, often difficult to implement due to a person's habits, over a lifetime, which may be difficult to change.

(2) Any treatment has to be given cautiously as the aim is for a gradual reduction of blood pressure. Any dramatic reduction is dangerous.

(3) Before instituting treatment, the patient's past and present medical problems must be considered carefully. For example,

- Asthmatic - must never be given beta blockers
- Diabetes Mellitus) thiazides will aggravate
- Hypercholesterolaemia) these conditions
- Cardiac failure - beta blockers should not be given in the acute stage

(4) In patients who have had previous cerebrovascular accidents, the aim of reduction of blood pressure to normal may not be appropriate. Cerebral perfusion in these patients may be dependent on a higher blood pressure.

(5) To treat and control other risk factors ie. diabetes mellitus, obesity, hyperlipidaemia.

In mild to moderate hypertension, a diuretic or beta-blocker either singularly or in combination is used as all trials have shown improvement with this. In resistant hypertensives, defined as patients with a persistent diastolic pressure of above 90 mmHg despite treatment, the following points must be excluded before the use of secondary anti hypertensive drug such as calcium antagonists eg. nifedipine and ACE inhibitor

eg. captopril are used:

- (a) Difficulty with compliance
- (b) renal impairment - assess renal function as diuretic therapy is not effective in patients with renal impairment.
- (c) a possible secondary cause of hypertension.

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MANAGEMENT GUIDELINES

Approach to Hypertension

