

**AGE AND HYPERTENSION: WHAT EVIDENCE FOR WHAT TREATMENT IN “YOUNGER” AND “OLDER” PATIENTS?**

**KEY RECOMMENDATIONS**

- Age should not be seen as an exclusion for the treatment of hypertension
- Treat hypertension in “older” (>80) as you might in other patients but **slowly, cautiously**, and with a **more permissive threshold (<150/90)**
- In the younger patient (<40), do *consider* **secondary hypertension** and the need to refer to a secondary care hypertension clinic
- Young hypertensives have longer to damage their endothelium and end-organs –**consider treatment in patients under 60 even if the CVD risk score is below 10%**.
- Use the **JBS3 heart age scoring system in younger patients with a QRISK<10%** but who feel “risky” and consider initiation of treatment in patient with a heart age 5 years or more older than themselves.

**AGE AND HYPERTENSION**

NICE “stratifies” hypertensive patients in three age groups to be considered slightly differently <sup>1</sup>:

1. Young hypertensives (aged less than 40) where exclusion of secondary hypertension and consideration of treatment even at stage 1 hypertension is suggested.
2. Older hypertensives (aged over 80) where the blood pressure target is “relaxed” to a blood pressure below 150/90mmHg and “clinical judgement for people with frailty or multimorbidity” is advised.
3. Other hypertensive (40-80 years old) where the “standard” target of a blood pressure below 140/90mmHg is advised for any patient with stage 2 hypertension or stage 1 patients with evidence of end-organ damage or with a QRISK >10%.

**MANAGING THE “OLDER” HYPERTENSIVE**

In general, **age should not be seen as an exclusion for the treatment of hypertension** <sup>2-5</sup>. Elderly patients are at increased CVD risk and the morbidity from non-fatal events such as a stroke can be devastating to the patient and their relatives. The principal concerns are that lowering the blood pressure in elderly patient may lead to an increase in non-cardiac related mortality or morbidity (e.g. from falls due to hypotension or because in certain patient in this age group increased systemic blood pressure might be necessary to maintain adequate end-organ perfusion).

Evidence for treatment of hypertension in the over-80s is principally based on one RCT: the HYVET trial of 2007 <sup>4</sup>. The trial followed 3845 untreated hypertensive (sustained SBP >160mmHg) patients aged 80 or over and compared outcomes for a treatment arm (indapamide sustained release, 1.5 mg +/- perindopril 2.5-5mg to a target BP of <= 150/80mmHg) vs. a placebo arm. The primary endpoint was fatal or nonfatal stroke. The key outcome were:

- active treatment was associated with a 30% reduction in the rate of fatal or nonfatal stroke
- a 39% reduction in the rate of death from stroke
- a 21% reduction in the rate of death from any cause

In fact, the trial was terminated early by the Safety Monitoring Board because of the evidence of protective effect of BP reduction in the treated group <sup>5</sup>.

The trial however was not without its flaws <sup>5</sup>: Over 70% of the recruited patient were “younger” (80-84) and only 5% of the recruited patients were 90 or older; follow-up period was short (median 1.8 years) and, perhaps most saliently when considering the trial’s applicability to the general elderly population, “the HYVET deliberately recruited patients in good physical and mental conditions and excluded ill and frail individuals [...] and also excluded patients with clinically relevant orthostatic hypotension.” <sup>5</sup>.

Various other trials can help guide us in deciding on treatment thresholds, targets and considerations in treatment initiation, maintenance or modification (including cessation or reduction of treatment) in the elderly.

The SPRINT trial showed that aggressive SBP control (targeting a SBP of 120mmHg) lowered the incidence of major cardiovascular events or death from any cause when compared to patients with a looser SBP target of 140mmHg <sup>6</sup>, a finding which held true in the over 75. However, the proportion of patient aged over 80 in this cohort was not known and again “patients with advanced frailty, cognitive decline, loss of autonomy, and living in nursing home were excluded from the trial.”

The Milan Geriatrics 75+ Cohort Study followed 1587 patients aged 75 or over analysing the relationship between systolic and diastolic blood pressures with various outcomes and co-factors <sup>7</sup>. The lowest mortality in this cohort was found in SBP and DBP ranges 160-179mmHg and 90-99mmHg respectively with a U-shaped relationship with highest mortalities in the SBP ranges <120mmHg and  $\geq$ 180mmHg and DBP ranges <80 and  $\geq$ 100mmHg (see Figure 1). Furthermore, “higher SBP is related to lower mortality in subjects with impaired ADL and MMSE. ADL and MMSE may identify older subjects who benefit from higher blood pressure” <sup>7</sup>.

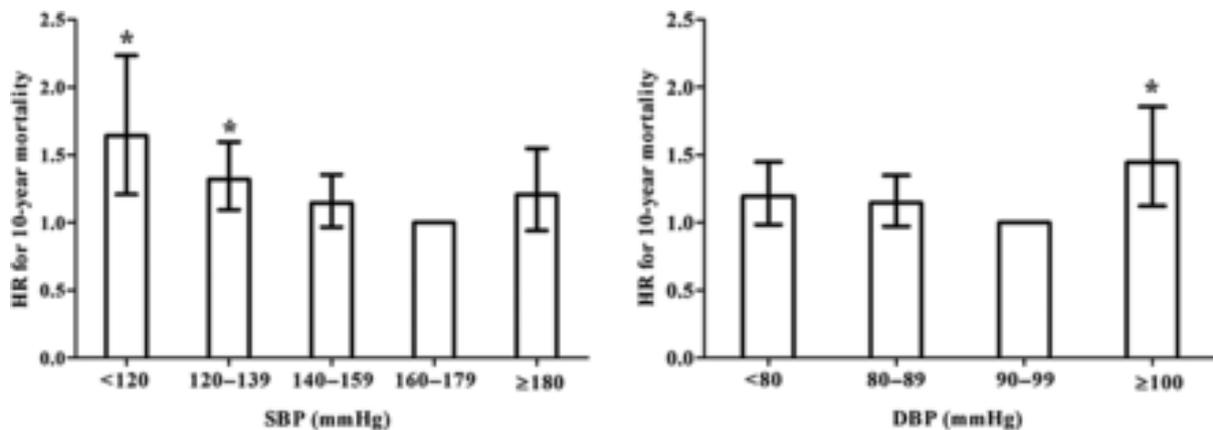


Figure 1: The U-shaped relationship between blood pressure and mortality <sup>7</sup>.

Looking at hypertension management guidelines can help us:

- “The 2013 ESH/ESC guidelines state that in individuals aged  $\geq$ 80 years with an initial SBP $\geq$ 160 mmHg, SBP should be reduced by drug treatment provided that patients are in good physical and mental conditions.” <sup>5</sup> with a recommended SBP target of <150mmHg.

- The NICE guidelines advise clinicians “to reduce clinic blood pressure to below 150/90 mmHg [...] in adults with hypertension aged 80 and over” but to “use clinical judgement for people with frailty or multimorbidity.”<sup>2</sup>

A balance must be reached between cardiovascular risk reduction and overly aggressive blood pressure management. A paper co-authored by Prof. Bulpitt, principal investigator in the HYVET trial, offers this advice for patients over 80 years of age<sup>5</sup>: **“while keeping <150 mmHg SBP as the evidence-based target, for safety reasons antihypertensive drugs should be reduced or even stopped if SBP is lowered to <130 mmHg, thus keeping the 150 to 130 mmHg on-treatment SBP values as a safety range.”**

### MANAGING THE “YOUNGER” HYPERTENSIVE

The prevalence of secondary hypertension (i.e. raised blood pressure due to a reversible underlying pathology) is higher in younger patients. Whilst it is thought that secondary hypertension account for 5-10% of hypertensives, the prevalence in the 18-40 age group is closer to 30%<sup>8</sup>. Prior to making a diagnosis of essential hypertension in the younger person, it is therefore important to exclude secondary hypertension –three excellent review article to help GPs with this are by Viera and Neutze<sup>9</sup>, Charles and Dobbs<sup>8</sup> and Hammer and Stewart<sup>10</sup>.

Bear in mind that a number of medications are contraindicated in pregnancy and that female hypertensives of child bearing age will need pre-conception counselling and may need specialist review and/or suitable contraception. The highest risk medications are renin-angiotensin system antagonist (ACE-inhibitors and Angiotensin receptor blockers); thiazides and thiazide-like diuretics are also contraindicated.

Lastly, it is worth remembering that the QRISK scoring system is thought to underestimate long-term risk in the younger patient (because age is a major component of the score). The most recent NICE guidelines recognise this and ask us to **“consider antihypertensive drug treatment in addition to lifestyle advice for adults aged under 60 with stage 1 hypertension and an estimated 10-year risk below 10%”**<sup>11</sup>. Younger patient might benefit from having their “heart age” calculated using the JBS3 scoring system (<http://www.jbs3risk.com/index.htm>) which has been designed for “to identify the sizeable number of individuals in the population who are at low short term risk but at high lifetime risk”<sup>11</sup>. As a rule of thumb, a 5 year “loss” in heart life or more (e.g. a heart age of 45 and above in a 40-year-old patient) should definitely prompt consideration of pharmacotherapy.

[PTO for References]

## REFERENCES

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