Special Considerations in the Management of Blood Pressure in the Frail Elderly

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Objectives/Overview of Presentation

- To review epidemiology of hypertension
- To highlight traditional treatment goals in hypertension
- To examine whether the evidence supports application of standard treatment benchmarks in the very elderly (> 80 years of age)
- To provide the background to the development of a BP target tool for the frail elderly at the Bruyere's Geriatric Day Hospital
- To offer practical guidance on the treatment of hypertension in the very elderly population

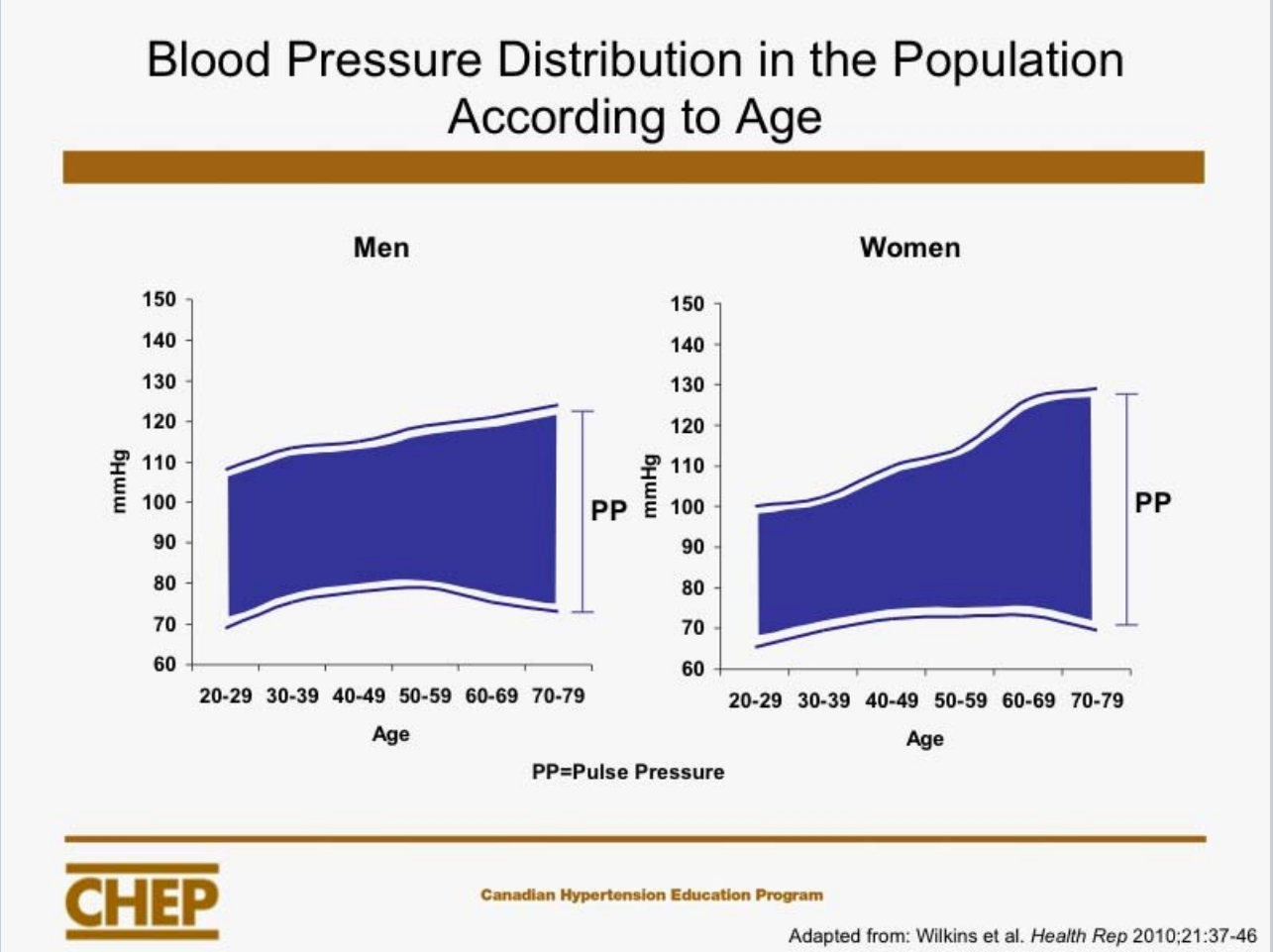
Burden of Disease in Hypertension

- According to the WHO, hypertension is the most significant preventable risk factor for premature death worldwide ("Global Health Risks: mortality and burden of disease attributable to Selected Major Risks." *World Health Organization 2009)*
- A known risk factor for
  - Ischemic heart disease and myocardial infarction
  - Heart failure
  - Cerebrovascular disease
  - Peripheral vascular disease
  - Chronic kidney disease
  - Cognitive Impairment
  - Hypertensive Retinopathy

Hypertension in Aging Adults

- Blood pressure tends to rise as we age
- Over 2/3 of adults >65 years of age afflicted with high blood pressure
- This segment of the population also reputed to have the worst BP control rates (JNC 7 Express: The Seventh Report of the Joint National Committee on the Prevention, Detection, Evaluation , and Treatment of High Blood Pressure *US Department of Health and Human Services* 2003)
- Systolic hypertension most common in elderly (ISH)
- Widened pulse pressure also characteristic
- Stiffening of larger arteries
- Greater propensity to postural hypotension
- Polypharmacy more common in older adults

Hypertension in Aging Adults



General Treatment Goals in Management of HTN

- Treat to target <140/90 in those aged 60-79 years, including those with non-diabetic chronic kidney disease
- Target <130/80 for patients with diabetes
- Clear benefits on several fronts for this population, including (with reduction BP 15/6 mmHg)
  - Reduction in overall mortality (15%)
  - Reduction in cardiovascular mortality by 36%
  - Reduction in incidence of stroke by 35%
  - Reduction in incidence coronary artery disease by 18%
    - (CHEP GUIDELINES 2012)

What About for Those >80 years of age: The Case of Mrs. H

- 88 year-old widow living alone in apt.
- History of falls, balance difficulty x few years, including with HI and SDH last year, previous fracture to wrist
- PMHx otherwise includes:
  - hypothyroidism
  - CKD (CrCl 35 ml/min)
  - osteoporosis
  - possible cognitive impairment

Mrs. H (cont'd.)

- Sometimes c/o "dizziness" upon arising from chair
- Office readings range from 110/50 – 130/70 (supine)
- Has evidence of significant orthostasis, with drops from 120/70 to 100/55 on postural change (3 occasions)
- Has been taking Atenolol 25 daily, HCTZ 25 daily, Altace 5 daily (longstanding regimen)
- May be issues with adherence to meds given possible cognitive impairment

Managing Mrs. H's Blood Pressure

- Is Mrs. H's blood pressure acceptable?
- Would you apply the same treatment goals to her as to her 75 year-old younger sister?
- What would you change, if anything, with her blood pressure medications?
- What might be an acceptable target BP for her?

Putting Mrs. H into Context: Hypertension in the Very Old

- Epidemiological evidence from several studies suggests there may be a survival benefit to hypertension in those 85 years of age and older
- Evidence suggests there may be a turning point around the age of 80, whereby the previous favorability in having low blood pressure no longer holds; low blood pressure appears to confer an enhanced mortality risk above this age
- Morbidity may also be increased, with higher risk of adverse cardiovascular events, drowsiness, confusion related to overzealous treatment of BP in this group

Hypertension in the Very Old (cont'd.)

- In one study, patients with systolic blood pressure 160-180 had a three-fold higher chance of survival as compared with those with BPs 120-140 (Mattila *et al.*, 1988)
- In a Swedish population-based cohort study, low SBP (<120) correlated with greater 4-year all-cause mortality in those >85 years (even with controlling for health status)
- Swedish study also showed tendency toward a U-shaped mortality curve, with the lowest mortality occurring at a SBP of 164 mmHg (Mollander *et al.*, 2008)

Evidence from Trials for the >80 year-olds

- Most evidence comes from trials which included mostly “healthy elders” in this age group
- HYVET (Hypertension in the Very Elderly Trial) randomized almost 4000 patients >80 years with mean SBP >160 to receive either placebo or Indapamide (with/without Perindopril); largest RCT in this age group to date
- Target BP was <150/80 (higher than most guidelines)
- Proportion of “sick” elders few (e.g. <12% CVD hx, <7% diabetes, no dementia, few with orthostasis)

Overview of HYVET (cont'd.)

- Active therapy achieved target in 48% of subjects
- Mean BP achieved was 143/68
- Treatment arm experienced significant mortality benefit from all causes (NNT 47) (never previously observed), along with a significant reduction in cardiovascular outcomes (NNT 34) (Beckett *et al.*, 2008)
- HYVET stopped early due to treatment benefit observed

Limitations of HYVET

- Included a healthier group of >80-year-olds than in the general population (so lack of generalisability)
- Included very few >85 years (most 80-84 years of age), so little direction about management of this older group
- Study concluded early (so treatment benefit possibly exaggerated)
- Important to note that target <150/80 (and mean SBP achieved) higher than standard guidelines would advise

Other Significant Trials of Interest

- SHEP (Systolic Hypertension in the Elderly) trial:
  - Predated HYVET (1991)
  - Target SBP 20 mmHg below baseline if presenting BP 160-180/<160 if initially >180
  - Mean attained BP 143/78
  - Excluded patients with major illness
  - Demonstrated NNT 18 over 5 years to prevent a major CV event
  - Benefits on mortality less pronounced in >80 years of age group than in younger subjects
    - (SHEP 1991)

Evidence from Other Trials

- Other trials predating HYVET (e.g. European Trial on Isolated Systolic Hypertension in the Elderly/Sys-Eur, 1998) failed to demonstrate a consistent mortality benefit to treating hypertension in those >80 years of age
- Meta-analysis of several RCTs, including SHEP, showed a reduction in total stroke, but no reduction in total mortality – in fact cardiovascular and total mortality higher in treated subjects (INDANA 1999)
- A more recent systematic review of treatment in >80 yr-olds has shown no mortality benefit in this group (Cochrane 2009)

Developing a BP target tool at the BCC Day Hospital

- Lack of clear direction in current guidelines, trials to date re >80 yr old group led to development of a tool to guide treatment goals for this population
- Undertaken with physician – pharmacist collaboration (as well as input from outside geriatrician and cardiologist)
- Acknowledgment that increased risk of polypharmacy, adverse events, non-adherence in this older group makes treatment choices and benchmarks all the more important

BP Target Tool (cont'd.)

- Sets out same treatment goals for patients up to 79 years of age as current guidelines (e.g. CHEP)
- Suggests target <150/80 (from HYVET) for ISH in >80 year-olds and/or 20 mmHg less than baseline (SHEP)
- Suggests target of <140/90 in older diabetic patients (no benefit to less than this from ACCORD)
- Should avoid SBP <120 as may increase mortality
- Avoid DBP <60-65 as associated with increased risk CV events, stroke, MI (esp. in CAD patients) (SHEP, INVEST)

BCC Day Hospital BP Target Tool (cont'd.)

- The implementation of this tool the subject of a recent chart audit project at the Day Hospital
- The project aimed to examine
  - whether the tool was being consistently used to highlight BP treatment goals in care plans and charts
  - Whether the tool was perceived as helpful by the users
  - Whether the tool was guiding pharmacologic (and non-pharmacologic) choices
  - Whether treatment goals were being effectively and consistently communicated to family MDs upon patient discharge from Program

BP Target Tool Project (cont'd.)

- Results of the chart audit are currently being analysed
- Preliminary information suggests that the BCC Day Hospital MDs have found the tool extremely helpful in establishing consistency of treatment goals
- Has improved confidence with therapeutic choices re BP management
- Has highlighted anecdotally that as many (if not more) older DH patients present with hypotension due to overzealous HTN treatment than with poorly controlled HTN; entails reduction/discontinuation of meds to avoid risks of too low BP

BP Target Tool and Improved Communication

- Project has led to discussion of various ideas, including:
  - Notion of developing a standard letter to be sent to family MDs along with d/c summary (and perhaps earlier in patient's admission) outlining challenges of managing BP in older geriatric population, review of current evidence, statement of individualized target for patient in question
  - Making a point of consistently stating patient's BP target on any prescriptions for BP meds (copies of these Rx's routinely faxed to family MDs)

Back to the Case of Mrs. H

- Based upon evidence to date, her current BP levels are too low (considering her age, co-morbidities, symptomatic postural BP drops)
- Target should be higher than that for 75-year-old sister (who would still fit “standard” approach)
- Aim for no lower than 120/60 (or SBP>130)
- Ideally should be <150/80; could go higher if still “dizzy”
- Should likely stop Atenolol as to be avoided in patients >60 in absence of CAD (well-known from current guidelines); (will likely also improve OH)
- Monitor BP and consider further reduction in HCTZ, depending on response and symptoms

A Simple Approach to BP Management

- Identify and eliminate/reduce (if possible) medications and OTC products elevating BP, including
  - NSAIDs
  - Pseudoephedrine
  - SSRIs, MAOIs, SNRIs
  - Alcohol
  - Caffeine
  - Steroids
  - Nicotine
  - Sex hormones

Approach to BP Management (cont'd.)

- Consider non-pharmacologic approaches, including
  - weight reduction
  - reduction of sodium intake
  - increase in physical activity
  - reduction of alcohol intake

Approach to BP Management (cont'd.)

- Pharmacologically, consider starting with
  - Low-dose HCTZ/Indapamide/Chlorthalidone
  - Add low-dose ACE (e.g. Perindopril); double dose once if needed; (CCB an alternative, esp. if ISH)
  - This combo known to reduce risk of stroke (same as that used in HYVET); will result in achievement of target <150/80 in about 50% of patients (extrapolated from HYVET)
  - Avoid beta-blockers (unless indicated) in >60 yr-olds

Take Away Messages

- An individualized approach is needed to managing BP in the >80 year old patient
- Extremely limited data from trials on those >85 (fastest growing segment of senior population)
- What data we do have suggests increased morbidity and mortality from BP too low in the oldest of the old (but considered “normal” BP for younger patients)
- Higher risk of hypotension remains in older group even when health status factored out
- Trial data to date on >80 year olds suggests that benefits accrue from even modest reductions in BP and more lenient targets than standard guidelines would prescribe
- Be prepared to stop/reduce medications contributing to hypotension in the older geriatric patient

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