CANADIAN HYPERTENSION EDUCATION PROGRAM (CHEP) GUIDELINES: WHAT’S NEW

Stephanie Young, BSc(Pharm), Pharm.D., MSc(Med)
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Hypertension Facts
• Leading risk for death and disability world-wide
• Responsible for up to 50% of deaths due to heart disease and stroke
• Leading diagnosis for visits to physicians
• Decreasing population SBP by 5mmHg could reduce stroke deaths by 14%, CHD by 9%, total death by 7%

www.hypertension.ca/en/chep

Hypertension Awareness, Treatment and Control

Canadian Hypertension Education Program (CHEP)
• Evidenced-based Canadian hypertension guidelines
• Updated yearly, takes into account new evidence.
• Divided into two sections:
  • Part 1: Diagnosis and Assessment Recommendations
  • Part 2: Prevention and Treatment Recommendations

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CHEP 2014 Recommendations
• What’s new
  • Three recommendations modified
    • Sodium intake threshold
    • BP threshold for starting therapy in elderly
    • Population to receive ASA for primary prevention
  • Two new recommendations added
    • Hazard of DBP reduction in CAD
    • Use of A1C to screen for DM in patients with HTN

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Health Behaviors in Adults with Hypertension: Summary

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce foods with added sodium</td>
<td>≤ 2000 mg/day*</td>
</tr>
<tr>
<td>Weight loss</td>
<td>≤ 25 kg/m²</td>
</tr>
<tr>
<td>Alcohol restriction</td>
<td>≤ 2 drinks/day</td>
</tr>
<tr>
<td>Physical activity</td>
<td>30-60 minutes 4-7 days/week</td>
</tr>
<tr>
<td>Dietary patterns</td>
<td>DASH diet</td>
</tr>
<tr>
<td>Smoking cessation</td>
<td>Smoke free environment</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>Men: &lt;102 cm</td>
</tr>
<tr>
<td></td>
<td>Woman: &lt;88 cm</td>
</tr>
</tbody>
</table>

*2010-2013 CHEP: <30 yrs: <1500mg; 30-70 yrs: 1300mg; ≥70 yrs: 1200mg

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Impact of Health Behaviours on Blood Pressure

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Systolic BP (mmHg)</th>
<th>Diastolic BP (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet and weight control</td>
<td>-6.0</td>
<td>-4.8</td>
</tr>
<tr>
<td>Reduced salt/sodium intake</td>
<td>-5.4</td>
<td>-2.8</td>
</tr>
<tr>
<td>Reduced alcohol intake (heavy drinkers)</td>
<td>-3.4</td>
<td>-3.4</td>
</tr>
<tr>
<td>DASH diet</td>
<td>-11.4</td>
<td>-5.5</td>
</tr>
<tr>
<td>Physical activity</td>
<td>-3.1</td>
<td>-1.8</td>
</tr>
<tr>
<td>Relaxation therapies</td>
<td>-3.7</td>
<td>-3.5</td>
</tr>
<tr>
<td>Multiple interventions</td>
<td>-5.5</td>
<td>-4.5</td>
</tr>
</tbody>
</table>

Clinical Guideline: Methods, evidence and recommendations National Institute for Health and Clinical Excellence (NICE) May 2011

Sodium Intake of Canadians

- Average Canadian consumes 3400mg of sodium per day
- More than 90% of Canadian children aged 4-8 yrs are exceeding the dietary sodium guidelines
- Over 75% of the sodium consumed by Canadians comes from processed, packaged and restaurant foods

How much sodium would you get in...

- McDonalds Big Mac, large fries, large coke?
  - 1460 mg sodium (plus 1410 cal, 56g fat, 200g CHO, 30g protein)
- Chili’s Original Chicken Crispers?
  - 4460mg sodium (plus 1510 cal, 82g fat, 137g CHO, 63g protein)
- Wendy’s Cashew Chicken Salad?
  - 930mg sodium (plus 370 cal, 13g fat, 33g CHO, 34g protein)
- Similar numbers at most fast food/some chain restaurants (and packaged/processed foods)

Cochrane systematic review and meta-analysis

- Objective:
  - Determine effects of sodium reduction on BP, hormones, and lipids
- Inclusion:
  - randomized trials with a modest reduction in salt intake (reduction in 24 hr urine sodium of 40-120 mmol) and a duration of at least 4 weeks
- Exclusion:
  - study participants children, pregnant women, diseases other than HTN such as diabetes or heart failure, or other concomitant interventions

Cochrane systematic review and meta-analysis

- 22 (of 34) trials in hypertensives (n=990)
  - Median duration: 5 weeks (range 4 wks-1 year)
  - Median age 50 yrs (range 24-73)
- Results:
  - Baseline 24 hr urine sodium 162 mmol; BP 148/93 mmHg
  - U intake resulted in 24hr urine sodium -75mmol(53-117)
  - Reduced sodium towards threshold of 87 mmol (2000mg/d)
  - SBP change −5.39 mm Hg (95% CI −6.62 to −4.15)
  - DBP change −2.82 mm Hg (95% CI −3.54 to −2.11)

WHO systematic review and meta-analyses

- Objective:
  - assess effect of sodium reduction on BP, CV diseases, and adverse effects such as changes in renal function, hormones, and lipids
- Inclusion:
  - RCTs (and prospective cohort) with sodium intake difference of ≥40 mmol/d measured with 24hr urinary sodium, duration ≥4 weeks
- Exclusion:
  - studies with patients acutely ill, HIV-positive, or admitted to hospital.
WHO systematic review and meta-analyses

- 36 RCTs (n=5508 overall, n=1478 with HTN)
  - Most less than 3 mo (range: 4 weeks – 36 mo)

BP Results:

Aburto et al. BMJ. 2013 Apr 5;346:f1326. doi: 10.1136/bmj.f1326

Patient group  | SBP decrease, mmHg (95%CI) | DBP decrease, mmHg (95%CI) |
--- | --- | --- |
All          | 3.39 (2.46 to 4.31) | 1.54 (0.98 to 2.11) |
Hypertension | 4.06 (2.96 to 5.15) | 2.26 (1.50 to 3.02) |
Subgroup sodium <2g/d vs ≥2g/d | 3.47 (0.76 to 6.18) | 1.81 (0.54 to 3.08) |

Blood pressure threshold values for initiation of pharmacological treatment

<table>
<thead>
<tr>
<th>Population</th>
<th>SBP</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>130</td>
<td>80</td>
</tr>
<tr>
<td>High risk (TOD or CV risk factors)</td>
<td>140</td>
<td>90</td>
</tr>
<tr>
<td>Low risk (no TOD or CV risk factors)</td>
<td>160</td>
<td>100</td>
</tr>
<tr>
<td>Very elderly</td>
<td>160</td>
<td>NA</td>
</tr>
</tbody>
</table>

TOD = target organ damage

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Recommended BP Treatment Targets

Treatment consists of health behaviour ± pharmacological management

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<th>Population</th>
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<tbody>
<tr>
<td>Diabetes</td>
<td>&lt;130</td>
<td>&lt;80</td>
</tr>
<tr>
<td>All others &lt; 80 yrs (including CKD)</td>
<td>&lt;140</td>
<td>&lt;90</td>
</tr>
<tr>
<td>Very elderly (≥ 80 years)</td>
<td>&lt;150</td>
<td>NA</td>
</tr>
</tbody>
</table>

Hypertension in the Very Elderly Trial (HYVET) - Methods

- Design: Randomized, double blind, placebo controlled
- Allocation: concealed
- Blinding: Blinded (patients, clinicians, outcome adjudication committee)
- Follow-up Period: Median 1.8 years (stopped early)
- Setting: 195 centres in Europe, China, Australasia, Tunisia

HYVET - Methods

- Patients:
  - 3845 patients ≥80 yrs (mean 84 yrs, 60% female)
  - persistent HTN (mean sitting BP 173/91 mmHg)
  - Exclusion - accelerated or secondary HTN, hemorrhagic stroke <6 mo, HF, gout, dementia
- Intervention:
  - indapamide SR 1.5mg daily ± perindopril 2-4mg/d to reach SBP/DBP <150/80 mmHg (n=1933) or placebo (n=1912)
- Outcomes:
  - Primary-stroke
  - Secondary-death from: any /CV /cardiac cause, stroke

HYVET - Main Results

- At trial end, ~73% in treatment group receiving dual therapy
- Decrease in SBP / DBP:
  - Treatment: 29.5 / 12.9 mmHg
  - Placebo: 14.5 / 6.8 mmHg
- Target BP reached in 48% treated patients vs 20% placebo (p<0.001)
HYVET - Main Results

- 2nd interim analysis:
  - Fatal or non fatal stroke: RR 0.59 (0.40-0.88, p=0.009)
  - Death from any cause: RR 0.76 (0.62 - 0.93, p=0.007)

HYVET - Implications

- Generalizability:
  - Healthier older population in HYVET (low DM and CAD)
  - 65% had previously treated HTN
- Issues re early termination
  - Between interim analysis and actual stopping, benefit on primary endpoint lost.
  - Bottom line: in patients ≥ 80 yrs with persistent hypertension, treatment with indapamide and perindopril was beneficial

Questions?

CHEP 2014 Recommendations

- What’s new
  - Three recommendations modified
    - Sodium intake threshold
    - BP threshold for starting therapy in elderly
    - Population to receive ASA for primary prevention
      - Low dose ASA ≥ 50 yrs + HTN (Grade B)
  - Two new recommendations added
    - Hazard of DBP reduction in CAD
    - Caution in lowering SBP when DBP≤60 mmHg
    - Use of A1C to screen for DM in patients with HTN
      - In line with CDA recommendations

www.hypertension.ca/en/chep
Can J Cardiol 2014 (in press) DOI: 10.1006/cjca.2014.02.002