2016 Update in Geriatrics
Elizabeth Eckstrom, MD, MPH
Oregon Health & Science University
Oregon Geriatrics Society
October 7, 2016

I have no conflicts of interest
Photos thanks to Google images

This year’s top picks
• Should we be using lower BP targets? What about in patients over 75 who are frail?
• Should we treat UTIs in patients with advanced dementia?
• Tai chi or PT for knee OA?
• Should we be using antipsychotics to prevent or treat delirium?
• TAVR for intermediate risk patients?
The SPRINT Trial

• 9361 patients with SBP 130-180 mm Hg at high risk for CVD disease
  – Clinical or subclinical CVD other than CVA
  – CKD (excluding PCKD)
  – Framingham 10 year risk ≥ 15%
  – Age ≥ 75
  – Excluded patients with DM, CVD, symptomatic CHF, ESRD, poor adherence

• Trial stopped early due to benefit
  – Median follow up 3.26 years

Intensive treatment group mean SBP 121, 2.8 meds
Approximately 50% did not reach treatment goal
Primary outcome: MI, ACS, CVA, CV death
ARR 1.6% NNT 61

Overall mortality
ARR 1.2% NNT 83

SPRINT Trial- Adverse events

<table>
<thead>
<tr>
<th></th>
<th>Intensive Treatment</th>
<th>Standard Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypotension</td>
<td>2.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Syncope</td>
<td>2.3%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Electrolyte Abnormality</td>
<td>3.1%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Injurious Fall</td>
<td>2.2%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Acute kidney injury</td>
<td>4.1%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

NNH for composite of all 5 (remember, NNT was composite of 4)= 26
Table S6. Serious Adverse Events, Conditions of Interest, and Monitored Clinical Measures in Participants Over 75

1. Defined as an event that was fatal or life threatening, resulting in significant or persistent disability, requiring or prolonging a hospitalization, or was an important medical event that the investigator judged to be a significant hazard or harm to the participant that may have required medical or surgical intervention to prevent one of the other events listed above.

2. An Injurious fall was defined as a fall that resulted in evaluation in an emergency department or resulted in hospitalization.

<table>
<thead>
<tr>
<th>Conditions of Interest</th>
<th>Intensive Treatment (N=1317)</th>
<th>Standard Treatment (N=1319)</th>
<th>Hazard Ratio (P Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAE Only</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypotension</td>
<td>29 (2.7)</td>
<td>24 (1.8)</td>
<td>1.49 (0.13)</td>
</tr>
<tr>
<td>Syncope</td>
<td>46 (3.6)</td>
<td>37 (2.8)</td>
<td>1.24 (0.33)</td>
</tr>
<tr>
<td>Bradycardia</td>
<td>41 (3.1)</td>
<td>43 (3.3)</td>
<td>0.94 (0.70)</td>
</tr>
<tr>
<td>Electrolyte abnormality</td>
<td>59 (4.4)</td>
<td>51 (3.1)</td>
<td>1.40 (0.10)</td>
</tr>
<tr>
<td>Injurious Fall</td>
<td>70 (5.3)</td>
<td>79 (5.5)</td>
<td>0.88 (0.42)</td>
</tr>
<tr>
<td>Acute Kidney Injury or Acute Renal Failure</td>
<td>75 (5.7)</td>
<td>54 (4.1)</td>
<td>1.38 (0.07)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Measures</th>
<th>Intensive Treatment (N=1317)</th>
<th>Standard Treatment (N=1319)</th>
<th>Hazard Ratio (P Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium &lt;130 mmol/L</td>
<td>69 (5.0)</td>
<td>44 (3.3)</td>
<td>1.50 (0.04)</td>
</tr>
<tr>
<td>Sodium &gt;150 mmol/L</td>
<td>0 (0.1)</td>
<td>0 (0.0)</td>
<td>-- (0.06)</td>
</tr>
<tr>
<td>Potassium &gt;5.0 mmol/L</td>
<td>17 (1.3)</td>
<td>11 (0.8)</td>
<td>1.53 (0.27)</td>
</tr>
<tr>
<td>Potassium &lt;3.5 mmol/L</td>
<td>68 (5.2)</td>
<td>65 (4.9)</td>
<td>1.04 (0.81)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs and Symptoms</th>
<th>Intensive Treatment (N=1317)</th>
<th>Standard Treatment (N=1319)</th>
<th>Hazard Ratio (P Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthostatic hypotension</td>
<td>277 (21.0)</td>
<td>288 (21.8)</td>
<td>0.99 (0.53)</td>
</tr>
<tr>
<td>Orthostatic hypotension with dizziness</td>
<td>25 (1.9)</td>
<td>17 (1.3)</td>
<td>1.26 (0.26)</td>
</tr>
</tbody>
</table>

SPRINT Trial- Adverse events over 75

<table>
<thead>
<tr>
<th>Condition</th>
<th>Intensive Treatment (%)</th>
<th>Standard Treatment (%)</th>
<th>Number Needed to Harm (NNH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypotension</td>
<td>2.7%</td>
<td>1.8%</td>
<td>111</td>
</tr>
<tr>
<td>Syncope</td>
<td>3.5%</td>
<td>2.8%</td>
<td>142</td>
</tr>
<tr>
<td>Electrolyte Abnormality</td>
<td>4.4%</td>
<td>3.1%</td>
<td>76</td>
</tr>
<tr>
<td>Injurious Fall</td>
<td>5.3%</td>
<td>6.0%</td>
<td>142 (Benefit)</td>
</tr>
<tr>
<td>Acute kidney injury</td>
<td>5.7%</td>
<td>4.1%</td>
<td>62</td>
</tr>
</tbody>
</table>

NNH for composite of all 5 (remember, NNT was composite of 4) = 26
SPRINT Trial-summary

- Patients with or at high risk for CVD have reduced CVD with more intensive BP control (NNT=61)
- Adverse events more common- for every CVD event prevented, there were more than 2 serious adverse events (NNH=26)
- Tighter control requires more medication and more intense monitoring
- Talk with your patients- for most people over 75, benefit may not be worth the risk
- Cognitive outcomes (and some others) not reported yet

The SPRINT Trial: Intensive vs Standard BP Control and CVD Outcomes in Adults Aged ≥75


Funding source: NIH, VA; drugs provided by pharma
What is the question?

- In patients over age 75, and with varying levels of frailty, does a target of 120 vs 140 SBP improve cardiovascular outcomes without increasing adverse events?

What they did

- Same methods as SPRINT study
- Frailty measures:
  - 4 meter walk test (gait aid OK)
  - 36-item frailty scale classified subjects as fit, less fit, or frail (28% fit this category) based on:
    - Montreal Cognitive Assessment
    - self-ratings of health from the Veterans RAND 12-Item Health Survey (VR-12)
    - self-ratings of depressive symptoms from the nine item-Patient Health Questionnaire (PHQ-9)
    - laboratory measurements, BP measurements, and self-reported comorbidities.
- 3756 subjects assessed, and 2636 randomized
CV outcomes by fit, less fit, or frail status
Clinical Bottom Line

- In this analysis of “fit to frail” SPRINT subjects, most subjects were still “fit” or “less fit”- so it is hard to extrapolate to truly frail patients
- Frail patients had higher rates of falls, injurious falls and hospitalization
- We STILL don’t have the cognitive data! You may want to wait till those are out before extrapolating SPRINT to those over 75 who are frail, have diabetes, or are nursing home residents

Survival After Suspected UTI in Individuals with Advanced Dementia

Dufour, et al, JAGS. 63:2472-2477
Funding source: NIA
What is the question?

We know that a lot of nursing home patients get antibiotics for suspected UTIs
We know antibiotics cause harm in nursing home patients
• Clostridium difficile
• Diarrhea or gastroenteritis
• Antibiotics resistant organisms
• Allergic reactions to antibiotics
Do antibiotics cause good in patients with advanced dementia and suspected UTI?

What they did

• Prospective trial in 35 nursing homes in Boston area, followed residents who had experienced at least 1 suspected UTI in last 12 months
• 110 residents, avg age 86, 84% female, all very demented (33% died in next year)
• 196 UTIs, 25% did not receive antibiotics
• Used Cox proportional hazards modeling to examine the association between treatment of at least 1 suspected UTI and death
Clinical Bottom Line

- For patients with end-stage dementia, treatment of UTIs did not lead to a survival benefit
- Those who got the most aggressive treatment (IV/hospitalization) had the shortest survival
- Only 16% had UTI-attributable symptoms, and in most cases it was hard to tell if there was any benefit from treatment.
- Best to provide good palliative care- and avoid antibiotics whenever possible
Comparative Effectiveness of Tai Chi Vs Physical Therapy for Knee OA: An RCT

Wang et al, Ann Intern Med. 2016;165:77-86

Funding source: National Center for Complementary and Integrative Health of the NIH

What is the question?

• Acetaminophen and NSAIDs are often inadequate for pain in knee OA and can cause side effects.
• PT has pain benefits but no evidence for improvement in well-being
• Tai chi has shown benefits for managing other types of pain- could it help with knee OA too?
What they did

- 1 year RCT
  - Tai chi twice weekly for 12 weeks
  - PT twice weekly for 6 weeks plus 6 weeks monitored home exercise
- 204 participants, avg age 60, 70% women, avg BMI 33, avg time of knee OA 8 years
- Outcomes: Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), physical function, medication use, quality of life
Clinical Bottom Line

• Both groups had substantial improvement in multiple measures at 12 weeks, many of which were sustained for a full year

• Tai chi already known to cut risk of falls in half, reduce pain in fibromyalgia, reduce BP, reduce cholesterol, reduce shortness of breath in CHF, improve sleep- and it is a lot cheaper than physical therapy!

Antipsychotic Medication for Prevention and Treatment of Delirium in Hospitalized Adults: Systematic Review and Meta-Analysis

Neufeld, et al, JAGS. 2016;64:705-714

Funding Source: John A Hartford Foundation, NIA (Dr. Inouye’s time)
What is the question?

• Does “preventive” antipsychotic administration reduce the incidence of postoperative delirium in adult patients?
• Does antipsychotic treatment in hospitalized adults with delirium improves outcomes, including duration and severity of delirium, hospital and ICU length of stay, institutionalization at hospital discharge, and mortality?

What they did

• Systematic Review and Meta-analysis
• 19 eligible studies identified (7 prevention, 12 treatment)
• Patient age 61-87
• Drugs used were haloperidol, risperidone, olanzapine
Antipsychotic Medication for Prevention and Treatment of Delirium in Hospitalized Adults: A Systematic Review and Meta‐Analysis

A Delirium Prevention in Postoperative Patients

Antipsychotic Medication for Prevention and Treatment of Delirium in Hospitalized Adults: A Systematic Review and Meta‐Analysis

Journal of the American Geriatrics Society
Volume 64, Issue 4, pages 705-714, 23 MAR 2016 DOI: 10.1111/jgs.14076


Antipsychotic Medication for Prevention and Treatment of Delirium in Hospitalized Adults: A Systematic Review and Meta‐Analysis

A Hospital Length of Stay

Antipsychotics

Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Mean Difference | IV, Fixed (% CI)

Denin 2010 | 36.9 | 20.6 | 18 | 33.3 | 23.3 | 18 | 0.0 | -2.20 [19.38, 17.00]

Grond 2010 | 36.2 | 19.5 | 35 | 19.5 | 18.8 | 18 | 0.0 | 0.70 [10.85, 11.45]

Grond 2010 | 17.7 | 15.5 | 30 | 19.5 | 18.8 | 18 | 0.0 | -1.80 [12.53, 3.52]

Haxim 2011 | 6.0 | 1.5 | 51 | 6.0 | 2.3 | 56 | 4.0 | 0.00 [2.07, 4.00]

Kalfar 2005 | 17.1 | 11.1 | 32 | 22.6 | 19.7 | 36 | 0.0 | -5.06 [12.71, 17.17]

Page 2013 | 28.7 | 45.1 | 42 | 29.9 | 33.5 | 47 | 0.0 | -5.29 [21.87, 11.47]

Prasertsan 2007 | 16.5 | 6.1 | 63 | 10.3 | 4.4 | 83 | 0.0 | 0.20 [10.16, 2.00]

van den Bogert 2013 | 24.7 | 10.5 | 137 | 32.6 | 23.3 | 200 | 0.0 | -7.59 [12.55, 1.15]

Wangi 2011 | 11.0 | 5.9 | 229 | 11.0 | 8.6 | 226 | 95.1 | 0.00 [0.16, 0.10]

Total (% CI) | 677 | 777 | 100.0 | -0.01 [0.16, 0.14]

Test for overall effect: Z = 0.14 (P = 0.89)

B ICU Length of Stay

Antipsychotics

Study or Subgroup | Mean | SD | Total | Mean | SD | Total | Mean Difference | IV, Random (% CI)

Denin 2010 | 15.6 | 7.7 | 18 | 20.1 | 23.1 | 18 | 0.4 | -10.50 [21.71, 0.77]

Grond 2010 | 17.1 | 22.3 | 35 | 13.8 | 17.1 | 19 | 0.0 | 3.90 [9.80, 16.00]

Grond 2010 | 13.7 | 16 | 36 | 13.6 | 17.1 | 18 | 0.5 | 0.10 [0.65, 0.80]

Haxim 2011 | 3.0 | 1.6 | 51 | 3.0 | 0.5 | 50 | 22.3 | -1.00 [-1.32, -0.70]

Page 2013 | 11.1 | 9.5 | 52 | 12.4 | 16.8 | 51 | 2.9 | -1.30 [-5.23, 2.63]

Prasertsan 2007 | 3.3 | 2.3 | 62 | 3.2 | 1.9 | 63 | 24.3 | 0.10 [-0.64, 0.84]

van den Bogert 2013 | 10.5 | 13.3 | 177 | 11.8 | 14.9 | 299 | 0.0 | -1.10 [-5.25, 1.10]

Wangi 2012 | 9.800 | 0.030 | 229 | 9.900 | 0.080 | 226 | 33.3 | -0.07 [0.05, -0.08]

Total (% CI) | 655 | 745 | 100.0 | -0.46 [1.15, 0.24]

Test for overall effect: Z = 1.28 (P = 0.26)
Clinical Bottom Line

- In randomized controlled trials, use of antipsychotic medications does not prevent delirium or improve delirium outcomes
- No evidence (!) about symptomatic relief attributable to these medications
- Be as judicious as possible in using antipsychotic medications in hospitalized adults with delirium
Transcatheter or Surgical Aortic-Valve Replacement in Intermediate-Risk Patients

Leon et al, NEJM, 2016; 34(17):1609-20
Funding source: Edwards Lifesciences

What is the question?

• We know that TAVR is a good option for patients at high risk of complications from surgical aortic valve repair (SAVR)
• If the patient isn’t as high risk (ie, would probably tolerate SAVR just fine), is TAVR still a comparable option?
What they did

• Randomized 2032 moderate risk surgical patients (4-8% Society or Thoracic Surgery) with severe AS to TAVR or SAVR

• Primary endpoint was death from any cause or disabling stroke at 2 years

Clinical Bottom Line

• Also looked at acute kidney injury, severe bleed, new onset a fib (better in TAVR group) and vascular complications/paravalvular aortic regurgitation (better in SAVR group)
• TAVR patients had a shorter ICU stay (2 vs 4 days) and a shorter hospitalization (6 vs 9 days) than SAVR patients
• In intermediate risk patients, TAVR could be a good option for severe aortic stenosis

What should I change this year?

• Consider a lower BP target for the right patient over 75
• Question use of antibiotics for UTI in advance dementia
• Tai chi for knee OA
• Limit antipsychotics for delirium
• TAVR may be a good choice for moderate risk patients with severe aortic stenosis