Critical Appraisal

Is chlorthalidone more effective in lowering BP than hydrochlorothiazide?

Bottom Line: Chlorthalidone 25mg is more effective than hydrochlorothiazide 50 mg in lowering SBP than HCTZ as evidenced by 24-hour ambulatory BP monitoring.

Level of Evidence: 2b

Three part clinical question: In patients with newly diagnosed hypertension, is chlorthalidone when compared with hydrochlorothiazide more effective in lowering blood pressure

Search terms: Chlorthalidone vs Hydrochlorothiazide
Databases searched: Pubmed


This article was selected because it is the most recent head to head comparison of the two drugs

The study design: Randomized, single blinded, 8-week active treatment, crossover trial with 4 week washout between treatments. Cross over was not studied due to order-drug-time interaction.

The study population: 18-79 years old, males and females, with hypertension, not receiving anti-hypertensives for 3 months at enrollment, 6-month average BP readings 140-179/90-109 mm Hg

Group 1: (n = 16, 16 analyzed) HCTZ 25 mg x4 weeks, then 50 mg for 4 weeks
Group 2: (n = 14, 14 analyzed) Chlorthalidone 12.5 mg x 4 weeks, then 25 mg for 4 weeks

Evidence:

<table>
<thead>
<tr>
<th></th>
<th>Hydrochlorothiazide</th>
<th>Chlorthalidone</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean 24 hour ABPM</td>
<td>-7.4 +/- 1.7</td>
<td>-12.4 +/- 1.8</td>
<td>0.054</td>
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<tr>
<td>Mean Daytime ABPM</td>
<td>-8.1 +/- 1.9</td>
<td>-11.4 +/- 2.0</td>
<td>0.230</td>
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<tr>
<td>Mean Nighttime ABPM</td>
<td>-6.4 +/- 1.7</td>
<td>-13.5 +/- 1.9</td>
<td>0.009</td>
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<tr>
<td>Office BP</td>
<td>-6.9 +/- 2.9</td>
<td>-8.1 +/- 3.1</td>
<td>0.89</td>
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</tbody>
</table>

Limitations: Short follow up duration; Only one dose compared; Single blinded; Cross-over not reported; Cardiovascular outcomes not studied directly

Comments: Larger scale studies with longer follow up needed. Effect on cardiovascular morbidity and mortality are factors that still need to be compared for the two drugs