COST-EFFECTIVENESS OF INDAPAMIDE IN PATIENTS WITH MILD-TO-MODERATE HYPERTENSION

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OBJECTIVES

Hypertension is one of the most common cardiovascular risk factors which affects approximately 1 billion individuals worldwide. The prevalence of hypertension in Greece is about 30%. Treatment of hypertension has been shown to reduce morbidity and mortality and to be one of the most cost-effective activities carried out in the health field.

Indapamide is one of the most frequently prescribed diuretics in Greece and the most expensive too. The purpose of this study was to compare the cost-effectiveness of indapamide with propranolol, amlodipine, enalapril and irbesartan in the management of mild-to-moderate hypertension in Greece.

METHODS

A cost-effectiveness analysis was performed. A decision analysis model was developed to compare the five alternative interventions. The analysis began at the point where the decision to initiate drug therapy with a single agent had been taken. The model assumed a comprehensive initial evaluation visit 1 month after drug therapy began. If blood pressure control was achieved, patients were re-evaluated every 4 months (periodic clinical and laboratory monitoring). Patient's who did not achieve adequate control were given a higher dose of the same agent. If control was still not achieved or the patients experienced intolerable side effects, they were switched to a single agent from another therapeutic class. Clinical inputs were derived from randomized controlled trials and cost data from public sources. The DerSimonian and Laird method was used for the meta-analysis.

The evaluation of the cost of managing hypertension includes the cost of drug therapy, monitoring, treating side-effects, poor compliance and switching. All costs were calculated from the perspective of the public insurance system organizations, in 2004 Euros (€). Future costs and clinical benefits were discounted at 5%. The time horizon was 5 years. Sensitivity analyses were performed. The primary outcome measure was the 5-year NNT to prevent one death.

RESULTS

Old and new drugs provided similar protection against total mortality and major CVD events in mild-to-moderate uncomplicated hypertension (Table 1). The 5-year NNT to prevent one death was 143 and just 34 patients had to receive one antihypertensive agent for five years to prevent one major CVD event (Table 2).

Table 1. Random effects meta-analysis comparing new vs old antihypertensive agents.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of Trials</th>
<th>RR</th>
<th>95% CI</th>
<th>P* value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total mortality</td>
<td>15</td>
<td>0.98</td>
<td>0.95-1.02</td>
<td>.92</td>
</tr>
<tr>
<td>CVD events</td>
<td>14</td>
<td>1.00</td>
<td>0.95-1.04</td>
<td>.006</td>
</tr>
</tbody>
</table>

Abbreviations: RR – relative risk; CI – confidence interval; P – value for heterogeneity across combined trials; CVD – cardiovascular disease. * P < 0.05 indicates heterogeneity of treatment effects across combined trials.

The five-years total treatment cost was €550.99, €582.04, €864.32, €622.30 and €1283.99 for indapamide, propranolol, amlodipine, enalapril and irbesartan respectively and the estimated total cost to prevent one major cardiovascular event was €16239.77, €25474.88, €18341.68 and €37844.09 respectively (Figure 1). Sensitivity analyses confirmed the lower cost-effectiveness ratio of indapamide in comparison with propranolol, amlodipine, enalapril or irbesartan.

Table 2. Random effects meta-analysis comparing any antihypertensive drug treatment vs no treatment or placebo.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>No. of Trials</th>
<th>RR</th>
<th>95% CI</th>
<th>P* value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>57</td>
<td>0.79</td>
<td>0.74-0.85</td>
<td>.008</td>
</tr>
<tr>
<td>CVD event</td>
<td>23</td>
<td>0.74</td>
<td>0.69-0.80</td>
<td>.035</td>
</tr>
</tbody>
</table>

Abbreviations: RR – relative risk; CI – confidence interval; P – value for heterogeneity across combined trials; CVD – cardiovascular disease. * P < 0.05 indicates heterogeneity of treatment effects across combined trials.

CONCLUSIONS

In the management of mild-to-moderate hypertension in Greece, indapamide is more cost-effective than propranolol, amlodipine, enalapril or irbesartan. The results of this study support the last recommendations of the Joint National Committee and the International Society of Hypertension. Indapamide should be considered as the first choice of antihypertensive treatment in uncomplicated hypertension.

REFERENCES