Introduction

Thiazide diuretics have been recommended by the seventh report of the Joint National Committee (JNC 7th) and the British Hypertension Society in 1999 as the preferred first-line antihypertensive due to its affordability and evidence on its efficacy in the prevention of cerebrovascular events in those with hypertension. A recent cost-minimisation analysis showed that major cost-savings could also be achieved if the more expensive anti-hypertensives are switched to thiazides, which was estimated to result in savings of over $1 billion per year in the United States. It was generally agreed, therefore, that thiazide diuretics should be prescribed as a first-line agent in patients who present with uncomplicated, newly-diagnosed hypertension.

The present study analysed the effects of patient comorbidities on the prescription pattern of first line anti-hypertensive agents among family medicine trainees in Hong Kong.

Participants, Methods and Results

Telephone-administered surveys of trainees of Family Medicine in Hong Kong were conducted from December, 2003 to January, 2004. Each cluster coordinator in Family Medicine was contacted and requested to provide contact details of both basic and higher trainees with informed consent. The study was approved by the local Clinical Research Ethics Committee. Three clinical scenarios were considered (1) a newly diagnosed hypertensive patient with no other concomitant cardiovascular risk factors; (2) a newly diagnosed hypertensive patient with concurrent diabetes; and (3) a newly diagnosed hypertensive patient with concurrent hyperlipidemia. The choices of first line antihypertensive agent in the treatment of hypertension by FM trainees were enquired in patients of various age and sex. We obtained the overall prescription patterns in the absence and presence of these comorbidities, and measured the intra-rater agreement (κ) in each patient categories stratified by age (young < 65 and elderly > 65 y.o.) and gender (male and female).

A total of 101 participants (consisting of around 30% of all trainees in family Medicine in Hong Kong) were successfully recruited with a response rate of 100%. All interviews were complete with no refusal or drop-outs. In the absence of co-morbidities, the proportions of prescription choice in various patient age and gender groups were 40.6-51.4%; 24.8-32.7%; 18.8-23.8% and 0.9-3.0% for thiazide diuretics, β-blockers, Calcium Channel Blockers (CCBs) and Angiotensin Converting Enzyme Inhibitors (ACEIs) respectively. When the patients had diabetes, these figures became 9.9-19.8%; 6.9-10.9%; 8.9-11.9% and 63.4-66.3%. When hyperlipidemia was found to be the coexistent risk factor, the respective figures were 19.8-26.7%; 22.8-29.7%; 23.8-24.8% and 24.8-25.7%. The coefficients of agreement were low when diabetes was an independent variable (% agreement: 25-34%; κ = 0.16-0.21) compared to a higher degree of agreement in the presence of hyperlipidemia (% agreement: 54-58%; κ = 0.37-0.43). The patterns were very similar irrespective of age or gender (Table 1).

Comments

Diabetes is an important factor that influences the choice of first-line antihypertensive agents in doctors whereas the presence of hyperlipidemia is also fairly influential. Since the present evidence points toward diuretics as the recommended first-line agent for the treatment of hypertension in diabetic patients without nephropathy and in hyperlipidemia patients; the common usage of the newer agents like ACEIs in the presence of these comorbidities were not justified. The costs which could be saved if thiazide diuretics, rather than the newer agents, were utilised might be huge. The implementation of evidence-based guidelines and promotion of prescribing thiazide diuretics among primary care doctors in Asian countries should be reinforced. This would allow a more cost-effective use of health resources in Asia, until more evidence on the unique benefits from these other newer agents is available. Since few economic analyses have been conducted on the use of antihypertensive agent in primary care, we suggest future cost-minimisation studies be conducted to investigate the effects of the choice of first-line antihypertensive agents in primary care doctors on health care costs among Asian populations.
Table 1. Intra-rater agreement of respondents in prescribing first-line antihypertensives for patients without concomitant cardiovascular risk factors vs. patients with concurrent diabetes and hyperlipidaemia (inside brackets are the independent variables to calculate kappa +/- s.e.)

<table>
<thead>
<tr>
<th></th>
<th>Young male patients</th>
<th>Elderly male patients</th>
<th>Young Female Patients</th>
<th>Elderly Female Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% regimen unchanged</td>
<td>k (± s.e.)</td>
<td>% regimen unchanged</td>
<td>k (± s.e.)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>25%</td>
<td>0.16 (± 0.04)</td>
<td>34%</td>
<td>0.21 (± 0.04)</td>
</tr>
<tr>
<td>Hyperlipidaemia</td>
<td>58%</td>
<td>0.43 (± 0.06)</td>
<td>56%</td>
<td>0.40 (± 0.06)</td>
</tr>
</tbody>
</table>

(Two results were not included in analysis since their chosen agents fall outside the major 4 antihypertensive groups)

References

4. Mayor S. Thiazides could achieve major cost savings in uncomplicated hypertension. BMJ 2003; 327: 521 (6 September)