A comparison of blood lipid and blood pressure responses during the treatment of systemic hypertension with indapamide and with thiazides

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Authors' objectives
To examine the lipid and antihypertensive effects of thiazides and indapamide in the treatment of hypertension.

Searching
MEDLINE and bibliographies of retrieved articles were searched.

Study selection
Study designs of evaluations included in the review
The study designs eligible for inclusion were unclear. Before-and-after studies were included.

Specific interventions included in the review
Thiazides and indapamide. Thiazides were administered at a range of doses in the included studies. Some studies used very low doses (<=15mg of hydrochlorothiazide or its equivalent in other thiazides) and low doses (25 mg/day or its equivalent).

Indapamide was administered at doses of 2.5 mg/day.

Participants included in the review
Patients with hypertension (no other details) were included.

Outcomes assessed in the review
The outcomes were changes in systolic and diastolic blood-pressure and total cholesterol, high density lipoprotein cholesterol and serum triglyceride levels.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not state that they assessed validity.

Data extraction
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction.

Methods of synthesis
How were the studies combined?
A meta-analysis was carried out by weighting the means of individual studies by the number of participants examined, and calculating standard deviations and standard errors based on the variance of the weighted means. Group means were then compared by unpaired t-tests or analysis of variance.

How were differences between studies investigated?
The author does not state how differences between the studies were investigated.
Results of the review
Thirteen studies (total n=558) provided data on both lipid and blood-pressure effects of indapamide.

Thirty-one studies (total n=989) provided data on thiazides, 430 patients in low-dose studies and 559 patients in high-dose studies.

The total cholesterol increased from baseline by 1.4% on indapamide, 3.8% on low-dose thiazides and 6.3% on high-dose thiazides. The change from baseline was significantly greater for high-dose thiazides than for indapamide (p<0.01). Changes in high-density lipoprotein cholesterol did not differ among groups. The change in triglycerides differed among regimens, -0.5%, 10.8%, and 19.5% for indapamide, low-dose thiazides, and high-dose thiazides, respectively (p<0.01). Systolic blood-pressure (SBP) decreased by 13 and 18 mmHg on low-dose and high-dose thiazides, respectively (p<0.05 between doses). Indapamide lowered SBP by 16 mmHg, not different from either thiazide dose. Diastolic blood-pressure did not differ among groups.

Authors' conclusions
The author reaches 3 main conclusions: (1) indapamide has no adverse lipid effect and lowers blood-pressure equally to thiazides; (2) thiazide's effects on lipids and SBP are dose-dependent; and (3) thiazides adversely affect the lipid profile even in low dose.

CRD commentary
The review appears to pool studies without systematically assessing their quality. There are few study details of study designs, or details of the included patients in the primary studies. As the search is limited, other relevant trials may have been missed. The method of meta-analysis may also be inappropriate, as it ignores within-study variance and assumes all studies are similar apart from their sample sizes. It is unclear whether this is the case. The robustness of the review's results is therefore unclear.

Bibliographic details

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract
contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.