Cost-minimisation analysis of initial antihypertensive therapy in patients with mild to moderate essential diastolic hypertension


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
32 anti-hypertensive drugs in 6 drug categories: diuretics, beta-blockers, alpha1-blockers, centrally acting alpha2-agonists, ACE inhibitors and calcium channel blockers.

Type of intervention
Primary Prevention

Economic study type
Cost-effectiveness analysis

Study population
Patients with previously untreated or newly diagnosed mild-to-moderate diastolic hypertension.

Setting
An American Medical Centre (primary care), The economic study was carried out at Creighton University USA.

Dates to which data relate
Effectiveness and resources data related to the period 1985 to 1992, all costs calculated in 1992 prices.

Source of effectiveness data
Single study

Link between effectiveness and cost data
Costing was undertaken on the same sample of patients as the effectiveness data and both were undertaken retrospectively.

Study sample
1297 patients’ charts were evaluated. Patients who had pretreatment diastolic blood pressure between 95mmHg and 110mmHg were included in the analysis. Therefore 673 patients constituted the study sample. Of these, 12.6% were allocated in the diuretics group, 17.1% in the beta-blockers group, 7.6% in the alpha blockers group, 10.5% in the centrally acting alpha2-agonists group, 17.7% in the ACE inhibitors group and 34.5% in the calcium channel blockers group.

Study design
Retrospective cohort study, single centre study. The duration of follow up was 6 months. There was no loss to follow up.

**Analysis of effectiveness**

Analysis was based on intention to treat. Main outcome was blood pressure reduction. Comparability of demographic and baseline characteristics among treatment groups was assessed.

**Effectiveness results**

Comparable mean reductions in systolic and diastolic blood pressures were achieved. Treated systolic blood pressure ranged from 128 +/- 6 mmHg to 130 +/- 8 mmHg. For diastolic blood pressure the range was 86 +/- 3 to 88 +/- 2 mmHg. (values are expressed as mean +/- SD).

**Measure of benefits used in the economic analysis**

Since the clinical study showed no difference in benefit between the treatment alternatives, the economic analysis was based on difference in costs only.

**Direct costs**

Costs and quantities of resources were not reported separately. Only health service costs were considered: costs related to drug acquisition costs, supplemental drug costs (taken from a 1992 published source), laboratory costs based on 1991 actual data, outpatient and inpatient day costs, side effect costs. Costs were not discounted. Costs were expressed in 1992 prices.

**Statistical analysis of costs**

Mean values and standard deviations of costs were reported.

**Indirect Costs**

Indirect costs were lost productivity. Costs and quantities were reported separately. Costs were not discounted. Estimate was based on authors assumptions.

**Currency**

US dollars

**Sensitivity analysis**

Not undertaken.

**Estimated benefits used in the economic analysis**

Not applicable.

**Cost results**

Annual mean total cost per patient were: $895 +/- 545 for beta-blockers, $1043 +/- 667 for diuretics, $1165 +/- 658 for centrally acting alpha2-agonists, $1243 +/- 800 or ACE inhibitors, $1288 +/- 697 for alpha1-blockers and $1425 +/- 962 for calcium channel blockers. (Values are expressed as mean +/- SD).

**Synthesis of costs and benefits**
Authors' conclusions
The total costs and the mean costs for supplemental drug therapy, laboratory tests and clinic visits were lower for beta blockers than for any other class of therapy. For all the classes of therapy simple drug acquisition costs did not reflect total costs of treatment.

CRD Commentary
This was a retrospective study of patient records. Given that patients were not randomly allocated to the various treatment groups it is impossible to judge whether the differences in treatment costs differed between the groups, except for drug acquisition costs. Thus it is quite possible, indeed probable, that the higher or lower non-acquisition drug costs were due to patients of differing clinical characteristics being given different anti-hypertensive therapy.

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