A comparative study of obstetric outcome of patients with pregnancy induced hypertension: economic considerations
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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
Management of pregnancy induced hypertension (PIH) with anti-hypertensive drug therapy using methylopa, labetalol, hydrallazine (individually or in combination) and additional palliative technologies (i.e.analgesics) versus management of normotensive pregnant women.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with pregnancy induced hypertension (PIH) (developing persistently elevated blood pressure of 140

Setting
Hospital. The economic study was carried out in Kuwait.

Dates to which data relate
The resource use and effectiveness data were collected between February and July 1994. The dates for the prices used were not reported but they appear to be from the same period.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness analysis and, although not explicitly reported, it appears to have been performed prospectively.

Study sample
Power calculations were not used to determine the sample size. A total of 448 patients were included in the study, 224 patients being included in the PIH group. The control group of normotensive women was matched by age and parity per patient.

Study design
Case-control study, carried out in a single centre. The duration of follow up was until giving birth.

**Analysis of effectiveness**

The principal used in the analysis of the clinical outcomes was intention to treat. The primary obstetric outcomes were induction rate, induction with initial artificial rupture of membranes, preterm delivery rate (before 37 completed weeks of gestation), and caesarean section rate. The neonatal outcomes were as follows: low birth weight rates, Apgar scores at 1 and 5 minutes, perinatal outcome and perinatal mortality rate. Groups were shown to be comparable with respect to nationalities, blood groups, and relationship to husband (in addition to age and parity). However, chronic disorders such as diabetes mellitus were more common in the study group than in the control. The disorder, as well as multiple pregnancies and other conditions, was found to be a confounding factor but this was not adjusted for in the final analysis.

**Effectiveness results**

In the obstetric side of the outcome spectrum the results for the PIH group and the control group were as follows:

- induction, 49.6% and 5.4%, (p<0.001);
- induction with artificial rupture of membranes, 8.0% and 20.3%, (p<0.02);
- preterm delivery, 21.4% and 5.4%, (p<0.0002);
- caesarean section rates, 27.7% and 3.1%, (p<0.001).

For the neonatal outcomes the results for the PIH and control groups were:

- range of birth weight, 1-2.5 kg, 21% and 3.1%, (p<0.001);
- range of birth weight 4.5-5.0 kg, 1.8% and 3.9%, (p<0.05);

Apgar scores at 1 and 5 minutes were lower for neonates of PIH mothers than for those of control mothers (p<0.0003 and p<0.001, respectively);

- perinatal outcome was much poorer in the PIH group, with p<0.001.

The perinatal mortality was 4% in the intervention and 0.8 % in the control; the p value was less than 0.001.

**Clinical conclusions**

The study revealed that "Hypertensive disorders of pregnancy are associated with increased maternal and perinatal morbidity and mortality”.

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

No summary benefit measure was identified in the economic analysis and only separate clinical outcomes were reported.

**Direct costs**

Some quantities were reported without details (i.e. doses, quantities, lengths of stay, etc.). The costs measured were operating costs (divided into cost of drugs, wages and salaries, laboratory costs and accessories such as needles, linen and stationery). The boundary adopted was the hospital. The estimation of resource quantities was based on actual data. The estimation of costs was apparently based on actual data and/or standard prices. The source of quantities was the institution's files and an interview verifying the accuracy of the data. The quantities were recorded in the institution's files measured from February to July 1994. No specific date was reported for the price data.
Statistical analysis of costs
Mean and standard deviations (SD) and p values of differences in costs were reported.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The PIH group's mean total cost was $4,105 (+/- 1,850) and that of the control group was $761 (+/- 105), (p value of the difference was less than 0.001).

Synthesis of costs and benefits
Not relevant.

Authors' conclusions
Hypertensive disorders of pregnancy are associated with increased maternal and perinatal morbidity and mortality in spite of the high care cost in terms of the high technology care system, drugs and expert personnel cost. This study advocates more research into the prevention, prediction and management including neonatal care, of hypertensive disorders of pregnancy.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of effectiveness
Due to the design adopted, the study may be susceptible to a number of potential biases and the internal validity of the effectiveness results may, therefore, have been weakened.

Validity of estimate of costs
Resource utilisation was not reported separately from the costs and adequate details of methods of cost estimation were not given.

Other issues
In view of the lack of randomisation and sensitivity analysis, the results may need to be treated with some caution. The issue of generalisability to other settings or countries was not addressed.

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