Comparison of Dinoprostone slow release pessary (Propess) with gel (Prostin) for induction of labour at term: a randomised trial

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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.

CRD summary
This study examined the clinical and economic impact of dinoprostone slow release pessary (Propess) in comparison with dinoprostone in the form of gel (Prostin) for the induction of labour at term. Propess was as effective as Prostin for induction, but reduced the number of vaginal examinations and hospital costs. The study was based on valid methodology, although no analysis of uncertainty was conducted. The authors’ conclusions should be treated with some caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study examined the clinical and economic impact of dinoprostone slow release pessary (Propess) in comparison with dinoprostone in the form of gel (Prostin) for women requiring induction of labour (IOL) at term.

Interventions
Two different preparations of dinoprostone, a vaginal prostaglandin for IOL, were compared.

For Prostin, women with their first pregnancy, with a Bishop’s score of four or less, received 2mg of gel intra-vaginally, with a reduced dose of 1mg administered to all women with a Bishop’s score of five or more. This was administered at six-hourly intervals up to a maximum dose of 4mg for first pregnancies and 3mg for women who had previously been pregnant. For Propess, the slow release pessary was inserted in the posterior fornix of the vagina.

Similar foetus monitoring was undertaken with both interventions.

Location/setting
UK/hospital.

Methods
Analytical approach:
This economic evaluation was based on a single study. The time horizon of the analysis was limited to the hospital admission period. The authors did not explicitly state the perspective adopted.

Effectiveness data:
The effectiveness data were based on a randomised controlled trial (RCT) that enrolled 120 consecutive women admitted to the delivery suite of a single hospital. There were 60 women in each group. The authors stated that the two groups were comparable in terms of their demographic and clinical characteristics. The follow-up was restricted to the hospital stay period. The primary clinical endpoint was the efficacy of the drug preparations defined as the number of vaginal deliveries in 24 hours after induction.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
No summary benefit measure was used and a cost-minimisation analysis was undertaken, because the two preparations were equally effective. The primary clinical measures were the efficacy rate, the Bishop's score change at 24 hours and the induction to delivery time.

Cost data:
The economic analysis included the cost of drugs and midwives. The resource use was based on data derived from a sample of 734 inductions that took place at the authors’ institution in 2005 and 2006. The costs of preparations for IOL came from the hospital finance department. Personnel costs were calculated in accordance with National Institute for Clinical Excellence (NICE) guidelines. All costs were in UK pounds sterling (£) and referred to the period 2005 to 2006.

Analysis of uncertainty:
Not carried out.

Results
The efficacy rate was 66.6% with Prostin and 63.3% with Propess (p=0.71). None of the clinical endpoints was significantly different between the groups, including maternal and neonatal outcomes.

Only the number of vaginal examinations was significantly higher in the Prostin group (6.2 standard deviation, SD: 2.7) compared with the Propess group (5.0 SD: 2.2, p=0.012).

The total costs over the period 2005 to 2006 at the authors' institution were £88,281.40 with Prostin and £69,730 with Propess. Thus, the use of the slow release pessary led to annual savings of £18,551.40 in a sample of 734 women.

Authors' conclusions
The authors concluded that Propess was as effective as Prostin for IOL, but that it reduced the number of vaginal examinations and hospital costs.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear in that two different preparations of the same drug were compared.

Effectiveness/benefits:
A RCT was carried out to assess the clinical impact of the two drugs. Such a design is a valid source of data given its strengths, such as the randomised approach, which reduces the potential impact of selection bias. The two groups were well matched at baseline. Furthermore, few exclusion criteria were applied, making the study sample quite representative of the patient population. There were some potential limitations. First, the size of the sample was not justified, so the clinical analysis may have had insufficient power to capture any statistically significant differences between the groups. Second, the evidence came from a single institution, which might not reflect the patterns of care in other medical centres. Finally, the potential impact of confounding factors or the use of alternative estimates was not investigated.

Costs:
The authors did not explicitly report the economic viewpoint, but only two categories of costs were included, which suggests that the perspective was that of the hospital. The unit costs and quantities of resources used were presented separately. Moreover, the sources of costs were explicitly reported. No statistical analyses of costs were carried out and the price year was not explicitly reported, but appeared to be 2005 to 2006.

Analysis and results:
The synthesis of costs and benefits was not carried out given the cost-minimisation approach. The issue of uncertainty was not investigated and no sensitivity analyses were carried out. The authors showed that the equal efficacy of the two preparations had already been demonstrated in previous reports.
Concluding remarks:
The study was based on valid methodology, although no analysis of uncertainty was conducted. The authors’ conclusions should be treated with a degree of caution.

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