Experiences with oral prostaglandin E_2 and amniotomy in the induction of labour

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Summary

LABOUR was induced in 42 patients by amniotomy and the simultaneous administration of oral prostaglandin E_2 (PGE_2). It was successful in 94.8 per cent of patients and appeared to be effective in both nulliparas and multiparas. The induction-delivery interval was influenced by the pelvic score of the patient. There was a high incidence of maternal side effects. No fetal side effects resulted from the use of the drug.

Introduction

Oral PGE_2 was first used to induce labour by Karim (1971) and Karim and Sharma (1971). Good results were claimed. The advantages of the oral route over the intravenous route, especially its convenience to both the patient and medical staff have been stressed (Barr and Naismith, 1972; Craft, 1972).

This report presents our experience with oral PGE_2.

Patients and Methods

All patients who required termination of the pregnancy for obstetric reasons were included in the study. The cervix was assessed at the commencement of induction and the cervical score as described by Bishop (1964) noted. Low water amniotomy was performed and oral administration of PGE_2 was started simultaneously.

In all cases, the drug was prepared fresh and according to the manufacturer's specifications. 5 mg. of PGE_2 in 0.5 ml. of N.N. dimethylacetamide was diluted and made up to 50 ml. with purified water so that the final concentration of PGE_2 was 0.1 mg. per ml. Initially a test dose of 0.5 mg. was given to the patient by mouth. Thirty minutes later, 1.0 mg. was given unless satisfactory uterine activity had already been established. Thereafter, depending on the uterine response, doses of 1.0, 1.5 or 2.0 mg. were given at two hourly intervals. The maximum single dose was 2.0 mg.

Pelvic assessment was done routinely at six hourly intervals. Half hourly observations of the maternal pulse rate, blood pressure and fetal heart rate were carried out. Any side effects were noted. The case was considered a failure if the patient had not delivered by the end of 24 hours.

Results

42 patients were induced in the manner described. Three patients were delivered by Caesarean section; two for fetal distress and one for suspected cephalo-pelvic disproportion. Of the remaining 39 patients, 37 were delivered successfully (94.8 per cent). The two failures in the trial were infused with syntocinon and finally delivered vaginally. One patient was a nullipara with a pelvic score of six and the other, a secundipara with a pelvic score of two.

There were 14 nulliparas and 28 multiparas in the study. The pelvic score before induction was not statistically different between the two groups (Mean = 7.3, S.D. = 2.0). Table I shows the results following induction in the two groups of patients.

Table I

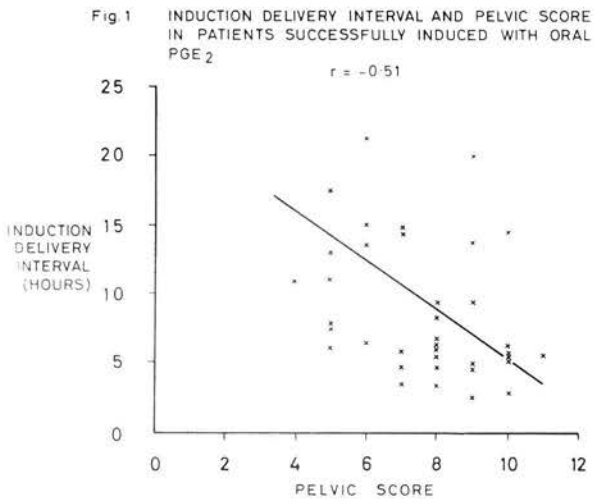
Results Following Induction with Oral PGE_2 and Amniotomy

Parameters	Nullipara Mean ± S.D.	Multipara Mean ± S.D.	Overall Series Mean ± S.D.
Induction-dilatation interval (hours)	11.5 ± 6.9	8.6 ± 7.2	9.7 ± 7.1
Induction-delivery interval (hours)	12.6 ± 6.8	8.9 ± 7.0	10.2 ± 6.9
Apgar Score			
1 minute	7.2 ± 2.1	7.5 ± 1.5	7.5 ± 1.7
5 minutes	9.3 ± 1.5	9.5 ± 0.7	9.4 ± 1.1
Birth-weight (grams)	3417 ± 351	3427 ± 479	3423 ± 443
Blood loss (ml.)	238 ± 150	172 ± 101	195 ± 124

The mean induction-dilatation and mean induction-delivery intervals were longer in the nulliparous patients than the multiparous patients. The differences were however not significant ($p>0.05$). Similarly, no statistical differences were found in the rest of the results.

There was no perinatal mortality or fetal side effects.

Figure I shows the relationship between pelvic score and induction-delivery interval in those cases successfully induced. There was a significant inverse correlation between them.



Side Effects

12 patients (28.5 per cent) had gastro-intestinal side effects. Eleven patients had nausea and vomiting which were severe in some cases. One patient had diarrhoea. Table II shows the gastro-intestinal side effects and the dose of PGE_2 given. Single doses of 1.5 mg. and 2.0 mg. of PGE_2 appear to produce these effects often.

No uterine hypertonus was noticed during the study.

Discussion

The results of our study show that oral PGE_2 combined with amniotomy can induce labour successfully. The length of the induction-delivery interval is governed to a certain degree by the inducibility index of the cervix. There were no harmful side effects on the fetus and this substantiates the findings of Craft (1972).

An undesirable feature of our study was the high percentage of gastro-intestinal side effects which were at times rather severe. Craft (1972) has reported a figure of 36 per cent. These side effects appear to be dose related. Single doses of 1.5 mg. and 2.0 mg. were more likely to produce them. As these were the doses usually needed to maintain labour, any reduction in them often led to a decrease in uterine contractions.

For oral PGE_2 to be considered a serious alternative to intravenous oxytocin as an inducing agent, these effects must be reduced. The new oral PGE_2 tablets appear promising in this respect. Only 9.2 per cent of patients produced gastro-intestinal side effects (Ang and Ng, 1976).

Acknowledgement

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Table II

Gastro-intestinal Side Effects and Dose of PGE_2

Patient	Side Effect	Maximum Single Dose of PGE_2 (mg)	Total Dose of PGE_2 (mg)
L.W.	Vomited 3 x – 270 ml.	2.0	12.0
C.J.	Vomiting – Amount and no. of times not recorded	2.0	9.0
L.W.	Vomited 1 x – 150 ml.	1.0	6.5
J.S.	Vomited 2 x – 560 ml.	1.5	Not recorded
I.B.	Vomited 1 x – 150 ml.	1.0	1.5
J.P.	Vomited 200 ml. – No. of times not recorded	1.5	3.0
N.F.	Vomited – Amount and no. of times not recorded	1.5	4.0
J.F.	Vomited 5 x – Amount not recorded	2.0	8.0
M.H.	Vomited 1 x – 200 ml.	1.5	4.0
M.C.S.	Vomited – Amount and no. of times not recorded	2.0	20.5
S.T.	Vomited 2 x – 300 ml.	2.0	5.0
C.R.	Diarrhoea 2 x	2.0	8.0

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