

# MEDICAL AND ELECTIVE INDUCTION - A PROSPECTIVE RANDOMIZED STUDY

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The problem of labour induction is still discussed in its validity, modalities of application and indications.

The most common methods include the administration of prostaglandins, of dexaminoxytocin and of oxytocin. Of these, prostaglandins and dexaminoxytocin seem to give better results <sup>(1, 2, 3, 4, 5)</sup>.

Recently, Lykkesfeldt <sup>(6)</sup>, in a study on 325 inductions, has observed a lower incidence of operative deliveries and a better foetal prognosis in the induction by E prostaglandin and dexaminoxytocin in comparison with labours induced by oxytocin and amniorrhesis.

In order to verify, on the basis of our personal experience, the validity of induction by dexaminoxytocin we have controlled retrospectively the inductions conducted at the obstetric and gynecologic department of Pavia, for the period January 1977-December 1979.

## MATERIAL AND METHODS

256 cases subdivided into 5 groups were observed:

- 1) 49 cases of premature rupture of membranes
- 2) 32 cases of bisymptomatic gestosis
- 3) 19 cases of diabetes
- 4) 39 cases of prolonged pregnancy
- 5) 117 cases of elective inductions.

Each group was studied in relation to the Bishop score calculated at the beginning of labour and was subdivided into two sub-groups according to whether the Bishop score ranged between 3 and 6 or between 7 and 10 <sup>(7)</sup>.

Dexaminoxytocin was administered orally at doses of 50 mg every 30 minutes for a highest total of 500 mg.

In the cases with intact membranes an amniorrhesis was performed at a dilatation of 3-4 cm, with presenting part dipping into the inlet or engaged.

A paracervical block by marcain at 0.25% (10 cc) was performed at a dilatation of 4-5 cm, with engagement of the presenting part in almost all the cases.

The course of labour was monitored in all cases by a cardiotocographic registration. The eventual modifications taken into consideration were the decelerations (Dips II); the secondary uterine hypertone, coloured amniotic fluid and

## SUMMARY

The results obtained inducing labour by peroral administration of dexaminoxytocin in 256 cases, including 139 medical inductions (49 cases of premature rupture of membranes, 32 of bisymptomatic gestosis, 19 of diabetes and 39 of prolonged pregnancy) and 117 elective inductions in cases with Bishop score between 3 and 6 and between 7 and 10, are reported by the Authors.

The decreasing frequency of operative deliveries, together with the decreased neonatal morbidity, also in cases of basic pre-existent pathology, allow us to conclude that the adopted method is valid.

Table 1.

	No. of cases	Bishop- score 3-6	Bishop- score 7-10
Elective induction	117	68	49
Premature rupture of membranes	49	27	22
Bisymptomatic gestosis	32	24	8
Diabetes	19	17	2
Prolonged pregnancy	39	21	18
Total	256	157	99

uterine inertia, with missed progression of the presenting part. All cases were subdivided according to the modalities of delivery.

The newborn conditions were evaluated according to the Apgar score. Among the neonatal pathologies observed during the first seven days of life, cases of hyperbilirubinemia, of hyaline membrane disease and of death, were reported.

The incidence of operative deliveries observed in cases of spontaneous labour during the same period, has also been calculated.

## RESULTS

Out of 256 induced cases 234 (91.7%) had a spontaneous delivery and 22 (8.3%) an operative one.

Table 1 shows in detail the 256 cases subdivided into 5 groups, in relation to the Bishop score calculated before the induction.

In table 2 cases with Bishop score between 3-6 and 7-10 in relation to the modalities of operative delivery and to the pathology that led to the operation, are reported.

The cases of spontaneous delivery with Bishop score between 3-6 and 7-10 and the pathologies taken into consideration, which occurred during labour, are mentioned in table 3.

The Apgar score at birth (at 1' and at 5') and the neonatal pathologies of the first seven days including cases of hyperbilirubinemia, of hyaline membrane diseases and of death are listed in table 4 in relation to the two groups of Bishop score

Table 2.

	No. cases	Cesarean section	Vacuum extractor	Dips II during the dilating period	Missed	Foetal distress during the expulsive period
Bishop-score 3-6						
Elective induction . . .	3	2	1	—	2	1
Premature rupture of mem- branes . . . . .	2	—	2	11	1	—
Bisymptomatic gestosis . .	3	2	1	1	1	1
Diabetes . . . . .	2	1	1	—	1	1
Prolonged pregnancy . . .	4	1	3	1	—	3
Total	14	6	8	3	5	6
Bishop-score 7-10						
Elective induction . . .	3	1	2	—	1	2
Premature rupture of mem- branes . . . . .	1	1	—	—	1	—
Bisymptomatic gestosis . .	1	1	—	1	—	—
Diabetes . . . . .	1	—	1	—	—	1
Prolonged pregnancy . . .	2	1	1	1	—	1
Total	8	4	4	2	2	4

Table 3.

	No. cases	Bradycardia	Coloured amniotic fluid	Hypertone	Inertia
Bishop-score 3-6					
Elective induction	65	1	2	—	1
Premature rupture of membranes	25	—	1	—	—
Bisymptomatic gestosis	21	—	2	1	1
Diabetes	15	—	1	—	2
Prolonged pregnancy	17	—	—	—	1
Total	143	1	6	1	5
Bishop-score 7-10					
Elective induction	46	—	—	2	1
Premature rupture of membranes	21	—	—	—	1
Bisymptomatic gestosis	7	1	1	—	—
Diabetes	1	—	—	—	—
Prolonged pregnancy	16	1	1	—	—
Total	91	2	2	2	2

and to the type of delivery, either spontaneous or operative.

The comparison between the incidence of operative deliveries in the induced cases and in spontaneous labours, during the same period, is reported in table 5.

## DISCUSSION

The validity of the method which has allowed, even in conditions of Bishop score between 3-6, to always induce labour with a considerable reduction of the incidence of operative deliveries, must be pointed out.

In particular, the incidence for forceps application was nulle and that of cesarean section was remarkably reduced, even if the elective indications were not included in the series.

The frequency of operative deliveries, in situation of Bishop score between 3-6 resulted higher in the medical inductions in comparison with the elective ones, while the trend is similar in the two

Table 4.

	No. cases	Operative deliveries	Spontaneous deliveries	Apgar at 1' 4-7/8-10	Apgar at 5' 4-7/8-10	Hyperbilirubinemia	Hyaline membrane disease	Deaths
Bishop-score 3-6								
Elective induction	68	3	65	5 63	— 68	—	—	—
Premature rupture of membranes	27	2	25	1 26	— 27	1	2	—
Bisymptomatic gestosis	24	3	21	2 22	— 24	1	1	—
Diabetes	17	2	15	1 16	— 17	2	—	—
Prolonged pregnancy	21	4	17	— 21	— 21	1	—	—
Total	157	14	143	9 148	— 157	5	3	—
Bishop-score 7-10								
Elective induction	49	3	46	2 47	— 49	1	—	—
Premature rupture of membranes	22	1	21	1 21	— 22	1	1	—
Bisymptomatic gestosis	8	1	7	1 7	— 8	—	—	—
Diabetes	2	1	1	— 2	— 2	—	1	—
Prolonged pregnancy	18	2	16	1 17	— 18	1	—	—
Total	99	8	91	5 94	— 99	3	2	—

Table 5.

		Caesarean section	Vacuum extractor application	Forcep application
No. of deliveries in the period 1977-79	4577	494 (10.8%) 318 (6.9%)*	237 (5.2%)	16 (3%)
No. of inductions in the period 1977-79	256	10 (2.5%)	12 (4.6%)	—

\* Number and percentage of caesarean sections not including the elective indications.

groups with Bishop score between 7 and 10. Similar behaviour in relation to the Bishop score is found in cases of spontaneous delivery for what concerns the observation of paratypical events occurred during labour: conclusions are obvious, for the different trend must be referred to the basic pathology.

For what concerns the condition of the newborn, it must be pointed out that the

conditions at birth were constantly excellent either in cases of spontaneous or operative delivery and not at all influenced by the situation of the initial Bishop score. On the other hand, the frequency of hyperbilirubinemia and hyaline membrane disease resulted related to the basic pathology.

Without willing to discuss on the opportunity or not of the generalized elective induction of labour, the results of this research point out the validity of labour induction by dexaminoxytocin not only in cases of medical indication, but also in those of elective induction at the end of pregnancy.

#### BIBLIOGRAPHY

- 1) Ritchie J. M., Brunedell J. M.: *Brit. Med. J.*, 1, 581, 1966.
- 2) Paul C.: *Bull. Soc. Roy. Belge Gyn. Obst.*, 37, 415, 1967.
- 3) Angeli G.: *Min. Gin.*, 21, 1589, 1969.
- 4) Cazzola D.: *Min. Gin.*, 26, 756, 1974.
- 5) Rehsteiner H. P.: *Int. J. Gyn. Obst.*, 8, 164, 1970.
- 6) Bishop E. H.: *Obst. Gyn.*, 24, 266, 1964.