# INDUCTION OF LABOUR WITH EXTRA - AMNIOTIC MANNITOL IN HIGH - RISK CASES

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## SUMMARY

**Termination of pregnancy by including labour is often indicated in obstetric patients when continuation of pregnancy may harm the mother and/or the foetus. Inspite of great advances, no fool-proof method of induction is yet available. Syntocinon is most commonly used in our hospital,but it needs constant supervision,specially in high risk cases e.g. grand multiparas,previous LSCS, post dated pregnancies and PET. Keeping this in mind, a comparative study was conducted on the efficacy of inducing labour with extra aminiotic mannitol in these cases. It was observed that the induction delivery interval was reduced, and rate of surgical intervention, inco-ordinate uterine action and foetal distress was significantly lower in the study group. This may be because mannitol leads to a more 'normal' labour. One added advantage is that close monitoring of mother and foetus is not required.**

Termination of pregnancy by inducing labour is often indicated in obstetric patients when continuation of pregnancy may harm the mother and or the foetus. The inducibility of labour is directly proportional to the Bishop's score (1964), viz.a score of 6 or more is favourable and 5 or less is unfavourable. Inspite of great advances, no fool-proof method of induction which is safe for mother and baby has yet been devised. Syntocinon with ARM (Valentine 1977) and prostaglandins (Karim et al 1972) Calder etal 1977) are the most commonly used drugs, but they have the inherent danger of leading to uterine hypertonia and consequent foetal distress, and sometimes to uterine rupture. These two drugs are used with great caution in multiparas and patients with previous LSCS and hydramnios. Extramniotic instillation of 20% mannitol through a Foley's catheter has a two fold action. The catheter has

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some mechanical action, and, together with the mannitol it leads to release of "physiological" amounts of prostaglandins which result in a normal labour without danger of uterine hypertonia. Keeping this in mind, it was decided to conduct a study on the use of extraaminiotic mannitol for inducing labour in these high risk patients, and also in patients with an unripe cervix or failed induction with syntocinon.B. Seal and S.k. Chaudhri (1987) reported very good results with extra-aminotic mannitol for inducing labour in patients with low Bishop's score.

## *MATERIAL AND METHODS*

The study was conducted on patients admitted in the obstetric wards of Safdarjung Hospital, during 1988-89. The cases were divided into 2 groups: Group A (study group)

**TABLE I**

| | Study Group | Control Group | |
|---|---|---|---|
| No. of Cases | 60 | 60 | |
| Parity : | | | |
| G 1 | 28 | 38 | 38 |
| G 2 | 5 | 14 | 16 |
| G 3 | 6 | 10 | 6 |
| G 4 | 15 | 4 | - |

**TABLE II**

| Pre-treatment Bishop's score | Study Group No. of Cases | Control Group No. of Cases |
|---|---|---|
| 0 - 5 | 24 | 20 |
| 6 - 10 | 26 | 40 |
| Post Mannitol Bishops Score | | |
| 0 - 5 | 6 | - |
| 6 - 10 | 54 | - |

**TABLE III**

| Induction Delivery Interval | Study Group (A) No.of Cases | % | Control Group (B) No. of Cases | % |
|---|---|---|---|---|
| Less than 12 hrs | 20 | 34 | 12 | 20 |
| 12 - 24 hrs | 30 | 50 | 24 | 40 |
| More than 24 hrs | 10 | 16 | 24 | 40 |

**TABLE IV**

| Mode of Delivery | Study Group | | Control Group | |
|---|---|---|---|---|
| | No.of Cases | % | No. of Cases | % |
| Normal vaginal Delivery | 44 | 73.3 | 24 | 40 |
| Forceps/Vaccum Delivery | 8 | 13.3 | 20 | 33.30 |
| Lower Segment caesarean section | 8 | 13.3 | 16 | 26.6 |

**TABLE V**

| Incidence of complications in Mother | Study Group | | Control Group | |
|---|---|---|---|---|
| | No.of Cases | % | No. of Cases | % |
| Hypertonia | 5 | 8.3 | 12 | 20 |
| Failed Induction | 4 | 6.6 | 10 | 16.6 |
| Foetal Distress | 8 | 13.3 | 18 | 30 |
| Rupture Uterus | Nil | | Nil | |
| Scar Dehiscence | Nil | | 1 | |
| PPH | 2 | 3.3 | 8 | 13.3 |
| Maternal Fever | 2 | 3.3 | 4 | 6.6 |

**TABLE VI**
**Neonatal Outcome**

| Apgar Score | Study Group | | Control Group | |
|---|---|---|---|---|
| | No.of Cases | % | No. of Cases | % |
| 0 - 5 | 5 | 8.3 | 8 | 13.3 |
| 5 - 7 | 10 | 16.6 | 12 | 20.0 |
| 7 - 10 | 45 | 75 | 40 | 66.6 |
| Neonatal Jaundice | 2 | | 6 | |
| Neontal Septicaemia | Nil | | 2 | |

included 60 cases who were induced with 20% Extra-amniotic Mannitol through a Foley's catheter and Group B had 60 cases who were induced with syntocinon alone. The indications for induction were: PET, Post dated pregnancy, congenital malformations with or without hydramnios, intra-uterine death, failed induction with syntocinon and cases of previous LSCS with any of the above indications.

In all cases detailed history was taken,

maturity confirmed by ultrasound, and Cephalopelvic disproportion ruled out. Only vertex presentation were considered in the study. Bishop scoring was done in both group A & B cases. In the study group, under all aseptic precautions the cervix was exposed with a speculum and anterior lip of cervix caught with volsellum. An autoclaved Foley's catheter No. 14 was introduced through the OS for about 8 cms and ballooned with 20 cc saline, and pulled down to cover the os. 150 -200 C.C. of 20% Mannitol was instilled into the extra-amniotic space by directly attaching a drip set to the catheter. A good number of cases in Group B had to be induced for 2 days before they went into labour. After 2 days of syntocinon, if no response was seen, extra-amniotic mannitol was introduced.

## *OBSERVATIONS*

There was improvement in Bishop's Score in 18 out of 24 patients (75%) and all these patients went into spontaneous labour, including the ones with failed syntocinon. The 6 cases who had a Bishop's score of less than 5 after Mannitol responded very well to subsequent syntocinon induction. There was a significant difference in the outcome of labour.73% in Group A and 40% in Group B had a normal vaginal delivery.

The induction delivery interval in Group A was much less compared to the control group. with 84% deliveries in less than 24 hours in Group A and only 60% in Group B. The incidence of instrumental delivery was much higher in Group B in 33% as compared to 13% in study group Similarly, LSCS was required in only 13% cases in study group and 26% in control group.It was observed that mannitol induction leads to a more 'natural' course of unassisted labour than in patients induced with syntocinon. Syntocinon frequently leads to inco-ordinate uterine action, prolonged labour, foetal distress, and inertia in the 2nd stage; all these factors were responsbile for the higher incidence of instrumental or surgical intervention in Group B cases. Foetal distress was observed in 30% cases in control and 13% cases in study group . Maternal and neonatal complications were similarly higher in control group (Table V and VI).

One patient of previous LSCS in control group, who was induced with syntocinon, had scar dehiscence inspite of close observations. However, it was immediately detected and there was no maternal or foetal morbidity.

## *CONCLUSIONS*

It was concluded from this study that extra-amniotic mannitol is a safe, convenient and very effective method of inducing labour. It has the advantage of leading to a 'normal labour' with low incidence of uterine hypertonia and foetal distress and subsequent surgical intervention. There is less maternal and foetal morbidity as compared to cases induced with syntocinon. The mean induction-delivery interval is also significantly less. The main advantage is that it is relatively safe in the high risk group of cases, specially multiparas and cases with previous LSCS. There is a theoretical risk of causing artificial rupture of membranes. There was no such case in our allies, but even if it does occur, syntocinon can be started as the patient was being induced anyway. No case of scar dehiscence due to catheter was noticed. It is proposed to continue this study by using mannitol to routinely induce labour as it can

be safely used in places where trained medical personnel are not available round the clock to monitor a syntocinon drip.

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