

EVALUATION OF INTRANASAL OXYTOCIN ADMINISTRATION AS A METHOD OF INDUCTION OF LABOUR

by

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The intranasal route of administration of oxytocin, introduced by Hofbauer and Hoerner in 1927, did not gather much popularity, because the cotton pledget saturated with oxytocin was not well tolerated by many patients.

However, Hendricks and Gabel in 1960 satisfactorily employed the intranasal route of oxytocin administration using the dropper and the spray methods. Satisfactory uterine contractions were established in 10-20 minutes of commencement of therapy. They recorded uterine contractions by intrauterine catheters, and noted that the uterine activity induced with intranasal oxytocin was indistinguishable from normal uterine activity. Clement, Harwell and McCain, in 1962, employed the intranasal route of oxytocin administration for induction or augmentation of

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labour for various indications in 1000 women with remarkable success.

All the authors comment on the ease and simplicity of the method and the high degree of success achieved. A similar procedure was employed in 50 cases at Nowrosjee Wadia Maternity Hospital to gain acquaintance with this method of induction of labour, and evaluate it.

Material and Methods

Labour was induced or augmented in fifty women at or near term for diverse indications with the use of intranasal oxytocin drops. The concentration of oxytocin administered was 350 mu per drop. One drop was instilled in each nostril every half an hour until the patient delivered or up to a maximum of 12 hours. Tocographic tracings were recorded in 23 cases during the period of study. Detailed clinical records were maintained in every case.

Results

Intranasal oxytocin administration

was successfully employed by Hofbauer in 1927. Since then occasional reports on its use have appeared in the literature. In the present series intranasal oxytocin was employed for indications shown in Table 1.

term, were successfully induced.

Four cases of antepartum haemorrhage, one of concealed accidental haemorrhage and three cases of placenta praevia were treated with artificial rupture of membranes and

TABLE 1

Indications	No. of cases	Per cent	Failure
1. Routine induction of labour	22	44.0	—
2. Premature rupture of membranes	8	13.0	—
3. Contracted pelvis with disproportion	6	12.0	2
4. Antepartum haemorrhage	4	8.0	—
5. Premature deliveries	3	6.0	—
6. Post-maturity	3	6.0	1
7. Intrauterine foetal death	2	4.0	—
8. Vesicular mole	1	2.0	—
9. Hydramnios with twins	1	2.0	—

The above table reveals that intranasal oxytocin was eminently successful in inducing satisfactory uterine contractions in 94% of cases. In the three unsuccessful cases labour pains were satisfactorily established but disproportion was the cause of failure of spontaneous delivery. Induction at term was successfully undertaken in 22 cases, 14 of these women were primiparae; none of the patients was in labour at the start of therapy.

Eight patients with premature rupture of membranes and draining for 48 hours were successfully induced.

Two of three cases of post-maturity, who had gone 14 days or more over

intranasal oxytocin.

Patients with intra-uterine foetal death, vesicular mole, abortions and hydramnios were also treated successfully.

All the three cases of failures had contracted pelvis; one of them was post-mature, another presented with breech, and a third case had definite disproportion. In all cases labour pains were successfully induced, but caesarean section was ultimately required.

Age

The next table shows results of intranasal oxytocin induction analysed in different age groups.

TABLE 2

Age in years	Total cases	Failures	Duration of labour in hours		
			Upto 4	4-8	8 and above
Below 20	16	1	5	5	5
20 - 25	15	1	7	6	1
26 - 30	14	1	3	6	4
31 and over	5	—	3	2	—

The table reveals that 80% of the patients were delivered within 8 hours of commencement of therapy and the response improved in the advancing age groups. This is mainly because concomittant with age the parity also rises.

Parity

The distribution of patients on basis of parity is shown in Table 3.

Relation of induction to condition of cervix

Condition of cervix	No. of cases	Failures
1. Cervix ripe	34	—
Cervix not ripe	16	3 failures
2. Internal os patulous	9	1
Internal os closed	41	2

The success with intranasal oxytocin is much better in patients with a

TABLE 3

Parity group	No. of cases	Failures	Duration of labour in hours		
			Upto 4	4-8	Above 8
1. I	22	2	7	8	5
2. II - IV	22	1	7	9	5
3. V and over	6	—	4	2	—

The table on parity shows essentially identical results in parity I and parity groups II-IV. But in grand multiparae — 4 of the 6 cases delivered in less than 4 hours and all the grand multiparae had delivered in less than 8 hours of induction of labour.

ripe cervix, and when the internal os is patulous as in multiparae.

Maternal and foetal results

This route of administration is easy and does not require constant supervision, the labour pains induced

TABLE 4

Oxytocin dosage required	No. of cases	Total average oxytocin in mu	Remarks
1. Less than 10 drops	7	1750	—
2. 11 drops to 20 drops	19	2500	—
3. 21 drops to 30 drops	14	3200	—
4. Over 30 drops	10	4000	3 failures

The above table shows that with doses up to 2500 mu about half the cases were successfully induced, and with doses up to 4000 mu about 80% of the cases were successfully induced.

mimic normal uterine pains; the uterus relaxed well in between pains in every case All the primiparae who delivered vaginally required an episiotomy.

Six multiparae required episio-

my. Two multiparae had small perineal tears.

None of the patients sustained cervical tears or other soft tissue injuries. There was no instance of post-partum haemorrhage or any genital tract sepsis in the series.

In none of the cases in the present series was foetal distress encountered.

Tocographic data

Uterine contractions were recorded in 23 cases; of these, 12 cases were taken up for routine induction, 3 for premature rupture of membranes, 2 for antepartum haemorrhage, 2 for borderline disproportion and the rest for miscellaneous indications. The pattern of uterine contractions showed a normal fundal dominance, and in 6 cases, where recordings from upper and lower uterine segments were taken, the tracings suggested normal propagation of contractions, resulting in effective cervical dilatation.

Conclusion

1. Intranasal oxytocin instillation provides a simple and effective method of induction of labour.

2. It succeeded in its purpose in 94% of cases in the present study.

3. The incidence of success is greater in women with a ripe and patulous cervix.

4. No untoward maternal or foetal effects were noticed.

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