

“THE EFFECT OF GLYCERYL TRINITRATE SKIN PATCH IN ARREST OF PRETERM LABOUR.”

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ABSTRACT:

INTRODUCTION: Advances in neonatal care during last 30 years have led to increased survival and reduced short and long term morbidity for infants born before 37 weeks. There is need of newer tocolytic drugs, which will give adequate tocolysis with little or no side effects on mother and foetus.

In this study nitroglycerine skin patch was used in the inhibition of preterm labour and its benefit as tocolytic agent have been demonstrated. Our aim was to study the effect of Glyceryl trinitrate in arrest of preterm labour and to study the efficacy of Glyceryl trinitrate for prolongation of pregnancy.

MATERIAL AND METHODS: Sixty patients were included in the study with specific Criteria for selection of patients was decided.

OBSERVATIONS AND RESULTS : In 60% cases had succeeded to reaching 37 weeks. When cervical dilatation was of 1cm, in 50% cases succeeded when was 2cm but at 3 cm. No case had succeeded. With undilatation success was high as 71.2%

RESULTS & CONCLUSION: GTN is found effective in prolongation of pregnancy in a wide range of gestation i.e. upon 37 weeks and having cervical dilatation upon less than 3 cm. Giving variable prolongation of 1 day to 130 days irrespective of parity and age.

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INTRODUCTION: Advances in neonatal care during last 30 years have led to increased survival and reduced short and long term morbidity for infants born before 37 weeks.. Complications of prematurity account for more than 70% of foetal and neonatal deaths annually in babies without anomalies¹. There is need of newer tocolytic drugs, which will

give adequate tocolysis with little or no side effects on mother and foetus².

In this study nitroglycerine skin patch was used in the inhibition of preterm labour and its benefit as tocolytic agent have been demonstrated. Our aim was to study the effect of Glyceryl trinitrate in arrest of preterm labour and to study the efficacy of Glyceryl trinitrate for prolongation of pregnancy.

MATERIAL AND METHODS: The pregnant women who were admitted in labour room or from the antenatal out patient clinic at one of the hospitals in Pune with preterm labour occurring between 20-36

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weeks of gestation were considered eligible for enrollment in the study. Sixty patients were included in the study.

Criteria for selection of patients were decided as following guidelines:

1. Singleton pregnancies.
2. Intact membranes
3. Onset of labour between 20-36 weeks.
4. Presence of at least one contraction sustaining for 30 seconds at frequency of every 7-10 minutes with progressive cervical dilatation and effacement over an observation interval of 1 hour .
5. Cervical dilatation of less than 4 cm.
6. With no obvious cause for the use of tocolytic agent :

Regime the drug:

Preterm labour was diagnosed when at least one contraction lasted for 30 seconds every 7-10 minutes persisted even after a period of 1 hour along with progressive cervical dilatation and effacement during observation period. USG was done to confirm the maturity of foetus.

Dose: Glyceryl trinitrate ointment.

Topical: A tube contains 30 gm of GTN. Administration of GTN to the skin in an ointment is used to allow gradual absorption of the drug for prolonged period.

Ointmentz: 25mm or 1 inch contains 15 mg Glyceryl trinitrate (20 mg/ ml) to apply on skin 8 hourly.

The drug was discontinued when maternal pulse rate increase 120/min, diastolic blood pressure decrease 50 mm Hg of complain of rash, severe headache.

When contractions were effectively abolished, the treatment was continued for 7 days.

* To avoid tachyphylaxis or desensitization of drug receptor after prolonged exposure, the drug should be given in a pulsatile fashion as compared with a continuous regime (Carities at al).

* Then drug was discontinued and patient was observed for 24 hr. If no contractions recurred, patients was discharged.

* The patients were followed till delivery.

OBSERVATIONBS AND RESULTS:

Sixty women admitted in the labour or antenatal ward with preterm labour in a general hospital in Pune were included in the study over 18 months. In that period all preterm deliveries considered. After confirming the diagnosis of preterm labour, control group was treated with GTN skin patch (Myovin) - 8 hourly.

TABLE 1 A : GRAVIDITY DISTRIBUTION		
GRAVIDA	NO. OF CASES	%
I	27	45
II	21	35
III	6	10
IV and above	6	10
Total	60	100

TABLE 1 B : GESTATIONAL AGE ON ADMISSION		
GESTATIONAL AGE	NO. OF CASES (n=60)	%
≤ 24 weeks	3	5.0
≥ 24 weeks to 26 weeks	4	6.69
≥ 26 weeks to 28 weeks	1	1.67
≥ 28 weeks to 30 weeks	3	5.0
≥ 30 weeks to 32 weeks	4	6.67
≥ 32 weeks to 34 weeks	8	13.33
≥ 34 weeks to 36 weeks	26	43.33
≥ 36 weeks to 37 weeks	11	18.33
Total	60	

Effect of drug : The effect of the drug was evaluated by the Arrest of preterm labour and prevention/ prolongation of delivery till term.

TABLE 2 : OUTCOME OF PRETERM LABOUR IN RELATION TO CERVICAL STATUS- SCORE			
CERVICAL STATUS	NO OF CASES (n=60)	NO. OF CASES REACHING SUCCESS (37 WEEKS)	%
Cervix			
Undilated :	7	5	71.42
* Uneffaced	-	-	-
* Minimal			
effaced			
1 cm-			
* Minimal	8	5	62.50
* Up to 30 %	16	10	62.50
* 30-60 %	3	2	66.67
* > 60%	1	1	100.00
2 cm-			
* Minimal	2	1	50.00
* Up to 30 %	11	6	54.85
* 30-60 %	8	3	37.50
* > 60%	-	-	-

- This table shows prolongation of pregnancy in relation to cervical dilatation at the time of entry.
- In 60% cases had succeeded to reaching 37 weeks. When cervical dilatation was of 1cm, in 50% cases succeeded when was 2cm but at 3 cm. No case had succeeded.
- With undilatation success was high as 71.2%

TABLE No. 3 : OUTCOME OF TOCOLYSIS WITH GTN		
OUTCOME	NO. OF CASES (n=60)	%
1) Pregnancy reaching term	33	55.00
2) Primary failure to onset	25	41.67
3) Secondary failure to arrest	2	3.33
4) PROM	0	-
5) Foetal distress during tocolysis	3	5.00

- Primary failure to arrest was in spite of treatment patient goes in labour and delivers that was seen in 25 case i.e (41.67%).
- Secondly failure to arrest means, 1st episode was treated by drug but in next episode fail to treat.
- This happens in 2 cases episode were at 24 + 3 weeks and 36 weeks and 2nd case at 27 case at 27 weeks at 30 weeks and 35 weeks.
- Foetal distress during tocolysis was in 3 cases.

DISUSSION: Worldwide acceptance of nitroglycerin in medical profession was for angina pectoris. GTN is not a new drug in obstetrics, as it is used for a few pregnant women with heart conditions³. Sixty patients who were admitted in labour room or antenatal clinic in preterm labour, were considered in the present study. All of the patients got GTN 1''8 hourly (25mm) i.e 15mg nitroglycerin is applied over abdomen. Antibiotics were given to all patients.

In the present study patients of varying age groups were included. The patient in both group was 16 year old the eldest was 35 years. It was noticed that about 41 patient were below age 27 years i.e. 68.33%. The obstetrical statistical co-operative computer bank from the years 1970 to 1990 have shown, that the incidence of preterm labour is more at a younger age group. According to them 42.6% of patient were below 23 years. Antenatal registration helps in treating for early diagnosis of preterm labour and helps in prevention of preterm labour .

Diagnosis of preterm labour was the crucial step in this study. Patients who were in falls labour were excluded as per selection criteria. Diagnosis of preterm labour was made according to following parameters: as the bodies of period of amenorrhoes⁴.

As per selection criteria only patients below 37 weeks were included in the study even though Campbell taken group of 23 to 33 weeks. After administration of the drug, the onset of response in the form of suppression of uterine contraction was noted. Onset was observed within 60 minutes as it correlates with its peak concentration by transdermal route.

Uterine contraction showed a decrease in intensity with frequency and duration being prolonged in all the successful cases in present study. Success rate was 100% went contraction were mild. Which severe contractions success rate falls dramatically.

GTN is found effective in prolomgation of pregnancy in a wide range of gestation i.e. upon 37 weeks and having cervical dilatation upon less than 3 cm⁵. Giving variable

prolongation of 1 day to 130 days irrespective of parity and age. Thus GTN was well tolerated by patients causing relaxation without any side effects.

CONCLUSIONS:

From the present work , we may conclude that GTN can effectively arrest uterine activity, only 5% women delivered within 24 hrs after onset of treatment. GTN prolonged preterm labour from 1 day to 130 days so to increase foetal salvage, mean is 33 days and Prolongation was directly related to cervical dilatation.

Date of manuscript submission: 22 October 2011

Date of initial approval: 30 December 2011

Date of Peer review approval: 26 February 2012

Date of final draft preparation: 3 May 2012

Date of Publication: 9 June 2012

Conflict of Interest: Nil, Source of Support: Nil.

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