

ROLE OF DRUGS IN ACCELERATION OF NORMAL LABOUR

(Epidosin Versus Diazepam)

by

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Introduction

The first stage of labour in a primigravida lasts about 12 to 16 hours and in a parous woman usually 6 to 8 hours. Painless labour has been the cherished desire of every woman and the constant aim of obstetricians. Fear-tension-pain syndrome is association with labour is a perpetual problem for obstetricians (Sharma *et al* 1979). This leads to reduction in the capacity of the pelvic musculature to relax, causing clinical and sub-clinical dystocias. More frequently seen in primi; multigravidae are not entirely exempted from this syndrome, mainly due to our cultural background of superstitions and taboos. Sedatives and spasmolytics have long been tried to facilitate relaxation of the cervix but were found to be of insignificant value.

Recently a new drug, Valethamate bromide (Epidosin), is being claimed as being effective in hastening labour and reducing its duration by 18-30% (Beck, 1956). Walter (1957) stated that it reduces hyperexcitability of the parasympathetic nervous system thus causing im-

provement in the process of cervical dilatation. Although efficacy has been claimed, few reports confirm this view. Another drug, Diazepam, a benzodiazepine derivative has been claimed to have a labour shortening effect. Husslein (1965) stated that Diazepam, by increasing the parasympathetic tone and by decreasing the sympathetic tone diminishes resistance to dilation of the birth canal, thus accelerating labour.

This study was undertaken to evaluate the efficacy, if any, of Epidosin and Diazepam in accelerating/shortening labour.

Material and Methods

A selective sample of 180 full term normal labour cases were taken for this study. The cases were distributed in the following groups:

Groups	gravidae (P)	gravidae (M)
	Primi-	Multi-
Control (C)	30	30
<i>Trial</i>		
Diazepam (D)	30	30
Epidosin (E)	30	30

The control group, received no drugs for acceleration of labour. Diazepam and

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Epidosin was injected in respective cases, when the cervix was 3 cms dilated. Diazepam 10 mgm intramuscularly (IM), was used as the initial dose and a second injection of 10 mgm IM was repeated, if no response was seen in an hour. Epidosin 8 mg, was administered IM at half hourly intervals to a maximum of 5 injections. Time between first Epidosin/Diazepam injection and full cervical dilatation (indicating end of 1st stage of labour) was recorded. Cervical dilatation was measured in hours with a cervimeter. Duration of 2nd and 3rd stages of labour was also recorded. Standard parameters for maternal and foetal well being were monitored as specified by Dawn (1978).

Efficacy of Epidosin and Diazepam in accelerating labour and their side effects, if any, on mother and foetus/neonate were noted.

Results

Table I depicts the mean duration of the 3 stages of labour and their pooled averages. As compared to control group, Epidosin group showed a significant shortening of duration of labour in primi and multigravidae. Difference in dura-

tion in labour between Diazepam and control group is statistically not significant. Labour was significantly shortened in group E as compared to group D, both in primi ($P < 0.001$) and multigravidae ($P < 0.05$).

The 3 stages of labour were analysed separately. In group E, the first stage of labour was reduced to 4.90 hrs in primi and 2.53 hrs in multigravidae. Compared to Group C, these results were statistically significant. First stage of labour was significantly shortened in group E as compared to group D, both in primi ($P < 0.01$) and multigravidae ($P < 0.01$). Difference in mean duration of 2nd stage of labour, was statistically not significant amongst control and trial groups. However, compared to group D, group E showed a significantly shorter duration of 2nd stage of labour, both in primi and multigravidae. There was no significant reduction in the 3rd stage of labour, among the trial and control group. There was no post-partum haemorrhage or any other complications.

As shown in Table II, APGAR Score was 8, 9/10 in both control and trial groups. There was no evidence of foetal

TABLE I
Mean Duration of the 3 Stages of Labour and Pooled Averages

Stages of Labour	Gravida	Mean duration in hrs. in the 3 groups			'P' value for the difference in duration		
		Control (C)	Diazepam (D)	Epidosin (E)	C & D	C & E	D & E
I	P	12.00	10.97	4.92	N.S.	<0.001	<0.01
	M	9.57	4.92	2.58	N.S.	<0.01	<0.01
II	P	1.50	2.07	1.33	N.S.	N.S.	<0.05
	M	1.50	0.63	0.42	N.S.	N.S.	<0.05
III	P	0.10	0.08	0.10	N.S.	N.S.	N.S.
	M	0.08	0.10	0.08	N.S.	N.S.	N.S.
Pooled	P	13.60	13.12	6.35	N.S.	<0.001	<0.001
	M	6.55	5.85	3.08	N.S.	<0.01	<0.05

N.S.—Not significant.

TABLE II
Relationship Between Drugs and Foetal Outcome

	Total No. of cases	APGAR SCORE		P Value
		1 Min	5 Min	
Control	P = 30	8/10	9/10	N.S.
	M = 30	8/10	9/10	N.S.
Trial Diazepam	P = 30	8/10	8/10	N.S.
	M = 30	8/10	9/10	N.S.
Epidosin	P = 30	8/10	9/10	N.S.
	M = 30	9/10	9/10	N.S.

asphyxia during the intrapartum or neonatal stage. Foetal salvage was 100%.

Table III shows that with Inj. Diazepam 10 mgs, in 10 patients, drowsiness resulting in failure of the secondary forces led to instrumental delivery in 25% of patients. Epidosin (32 mgs) was given to 2 patients. Of these, 1 had dryness of the mouth and the other complained of flushing of face and skin. Tachycardia was detected in 1 patient, when 40 mgs IM Epidosin was injected. She was asymptomatic. In group E, spontaneous delivery was 100%.

Discussion

In our study, maximum dosage of Epidosin was 40 mgs. Srivastava *et al* (1979), used a maximum dosage of 24 mgs in 116 normal full term labour cases, while Paranjape and Paranjape (1979) used a maximum of 32 mgs. In group D, maximum dosage of Diazepam injected was 10 mgs. Sharma *et al* (1979) in a study of 350 cases used similar dosage. In this series, there was no shortening in

A significant shortening in duration of labour was noted by Srivastava *et al* (1979) and Walter (1957) after using Epidosin for acceleration of labour. Present study revealed similar results. Mean

average time interval between administration of first injection of epidosin and delivery amongst primi and multigravidae was 4 and 2 hrs respectively as reported by Walter (1957). We reported 6.25 hrs and 3.00 hrs respectively. There was no significant acceleration of labour with diazepam. Sharma *et al* (1979) had similar results. Husslein (1965) has noted a labour shortening effect with Inj. Diazepam by 25 to 30%. However, a remarkable difference was found amongst the 3 groups as regards the emotional status of the patients. Only Diazepam had a tremendously beneficial effect on the emotional status of the patient by breaking the vicious circle of fear-tension-pain. This effect has also been reported by Sharma *et al* (1979) and Elder and Grossley (1969).

The percentage reduction in the 1st stage of labour in our series, was by 50% in both primi and multigravidae. Srivastava *et al* (1979) quoted a reduction by 45% in primi and 46% in multigravidae. Walter (1957) reported 21% and 17% respectively. In group D, reduction in duration of 1st stage of labour was 7% in primi and 14% in multigravidae. The difference was statistically not significant. This is in agreement with Sharma *et al* (1979). In duration of second stage of labour,

TABLE III
Untoward Reaction After Diazepam/Epodosin and its Effects on Mode of Delivery

Drugs	% showing reaction	No. of patients with untoward reaction	Dose of drugs given in mgs to each patient	Untoward reaction		Effect on mode of Delivery
				Subjective	Objective	
Diazepam	33.3	10	10	Drowsiness	Tendency to prologation of IInd stage of labour	Vacuum/forceps delivery
Epidosin	13.3	2	32	Dryness of mouth	—	Spontaneous delivery
		1	32	Flushing of face/skin	—	"
		1	40	—	Tachycardia	"

Walter (1957) and Srivastava *et al* (1979) had similar findings with Inj. Epidosin and Sharma *et al* (1979) with Inj. Diazepam. A significant increase in duration of 2nd stage of labour was noted in group D in comparison to group E, resulting in a higher rate of instrumental delivery in the former group. This could be attributed to drowsiness. Sharma *et al* (1979) reported no such effects with Diazepam. Walter (1957) and Srivastava *et al* (1979) and the present study reported an uneventful 3rd stage.

Neither Epidosin nor Diazepam had any toxic effects on the foetus. Similar views have been expressed by Sharma *et al* (1979) and Srivastava *et al* (1979). Diazepam and Epidosin had no significant effect on frequency and duration of uterine contractions in this study. Epidosin caused minor untoward reaction in 13% of patients, which could be dose related. Paranjape and Paranjape (1979) noted a tendency of untoward reaction when total Epidosin dosage exceeded 24 mgs.

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