

HIGH CONCENTRATION OXYTOCIN DRIP IN INDUCTION OF ABORTION

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Management of missed abortion after twelve weeks of pregnancy constitutes a serious clinical problem. Watchful expectancy for spontaneous abortion interferes with reproductivity, inflicts psychological trauma of carrying a dead foetus and entails the risk of development of hypofibrinogenemia. Active surgical interference exposes the patient to the danger of infection, haemorrhage and not infrequently ends up in hysterectomy.

Deployment of drugs and hormones to stimulate uterine contractility is an old story. Oestrogens enjoyed the widest and longest popularity. Hopes raised by Jeffcoate (1940), in due course, faded away (Martin and Menzies, 1955, Corbett, 1958). Quinine and intramuscular pituitrin, separately or in combination, proved ineffective and unreliable. Intravenous pitocin drip was used by Bivens in 1957, but he was "not impressed with its reliability". Ryan (1958) employ-

ed it in 3 cases, but found it to be of no value.

However, Loudon (1959) employed higher concentration of pitocin intravenously, and concluded that "this technique offers a reliable, rapid and safe method of managing missed abortion". Liggins (1962) treated 30 cases of missed abortion with high dosage of syntocinon infusion and claimed success in 27 cases. Toaff and Ayalon (1962) reported treatment of 20 cases by intravenous infusion of oxytocin glucose solution over two days. They increased the concentration of oxytocin systematically from 10 at the beginning to 117.5 units/500 ml. at the end. No failures were recorded.

Material

Three types of cases were studied:

- (i) Eight cases with retained dead embryos for 6-18 weeks.
- (ii) Three cases of pregnancy (16-24 weeks), in whom termination of pregnancy was considered essential, owing to persistent haemorrhage.
- (iii) One case of therapeutic abortion at 14 weeks of pregnancy—necessitated by co-existent bilateral renal calculi.

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Received for publication on 8-2-65.

Method

Method described by Toaff et al. was used, because of its simplicity.

The solutions were prepared as follows:

The first bottle contained 500 ml. of 5% glucose and 10 units of oxytocin (pitocin or syntocinon). After the first 100 ml. of solution was infused, 10, 5, 5 and 2 units were added respectively, at the start of each subsequent 100 ml. infusion, upto a total of 32 units of oxytocin in the first bottle. The second bottle contained 200 ml. of 5% glucose and 20 units of oxytocin at the outset. After the first 100 ml. was infused, 2 units were added. Thus a total of 54 units was given on the first day of treatment.

The third bottle, given on the second day, contained 500 ml. of 5% glucose and 50 units of oxytocin at the outset. After the first 100 ml. was infused, 10 units were added, and thereafter, 10 and 15 units respectively were added at 100 ml. intervals, upto a total of 85 units.

The resulting concentrations of oxytocin expressed in units per 500 ml. were as follows: in the first bottle, 10, at the beginning of the infusion, and after successive 100 ml. decrements, 22.5, 30.5 and 52.5 respectively; in the second bottle, 50 at the start, and 60 after the first 100 ml. had been infused; and in the third bottle, 50 at the beginning, and after successive 100 ml. decrements, 62.5, 79, and 117.5, respectively.

Since the rate of administration was 25 drops per min., the intravenous drip continued for 8-10 hours on the first day and for about 7 hours on the second day. Even when the

patient experienced painful contractions, the rate of administration was not changed and the concentrations were increased according to schedule. Morphia 11.0 mg. or pethidine 100 mg. intramuscularly was given as analgesic whenever required. The patients were constantly under supervision, pulse, blood pressure and uterine contractions were recorded half hourly. The uterine cavity was routinely explored digitally following expulsion of its contents.

Results

(i) Eight cases of missed abortion were subjected to this treatment. The duration of intra-uterine death varied from 6-18 weeks. All were multigravidae except one, the gravidity in 7 cases varying between 5-13. The age of patients ranged between 20-35 years in seven cases, one being under the age of 20 years. The cervix was firm and long in all. The induction/delivery interval was within 24 hours in 5 cases and within 32 hours in the remaining two successful cases. The treatment was uniformly successful in all but one case. In the latter, patient developed painful contractions, but drip had to be discontinued because of severe rigors (presumably due to imperfect aseptic technique). In the seven successful cases the highest concentration of oxytocin required was 117.5u/500ml. in 2 cases and 60u/500ml. in 5 cases. The total dose of oxytocin used was 6.2 units in 1 case, 42-54 units in 4 cases and above 100 units in two cases. One patient had profuse haemorrhage following the expulsion of foetus. This was easily controlled by digital evacuation of placenta.

(ii) Three cases of threatened abortion in second trimester of pregnancy were subjected to the above treatment. Two cases were 16 weeks pregnant, while one had reached 24 weeks of pregnancy. The termination of pregnancy was considered desirable because of persistent bleeding, despite the usual conservative measures in the hospital. Their haemoglobin ranged between 5-8 gm.% at the time of induction. The cervix was long and unfavourable in all. The induction/delivery interval was less than 24 hours in all three (8 hours in two). The maximum concentration required was 52.5 units/500ml. and the total dose of oxytocin used was 22.7-52.5 units in all. Excessive bleeding following expulsion of the foetus in one case was easily controlled by digital evacuation.

(iii) One case of 14 weeks normal pregnancy was subjected to this treatment. She had bilateral renal calculi with recurrent pyelonephritis and was referred to us for termination of pregnancy. Two day infusion therapy with a total of 139 units of oxytocin and maximum concentration of 117.5u/500ml. produced no result at all in this case.

Side Effects

One patient in this series, complained of frontal headache. It was easily controlled with analgesics. Excessive bleeding in two cases, after expulsion of foetus responded to digital removal of placenta. Coagulation defects were not met with in any case. Pulse, blood pressure and urine

output did not show any appreciable change.

Summary

High concentration oxytocin-glucose infusion was used intravenously in eight cases of missed abortion and three cases of disturbed pregnancy in the second trimester, with persistent bleeding. The results were highly gratifying. This therapy, however, failed to produce any effect in a case of normal pregnancy with co-existent bilateral renal calculi and recurrent pyelonephritis.

Acknowledgment

We are grateful to Dr. M. Chaudhuri, Medical Superintendent and Dr. P. Madan, Head of the Department of Obstetrics and Gynaecology, for allowing us to publish this paper. Our thanks are also due to Dr. (Miss) P. Malkani for helpful criticism of the paper.

References

1. Bivens, M. D.: *Obst. & Gynec.* 10: 46, 1957.
2. Corbett, H. V.: *J. Obst. & Gynec. Brit. Emp.* 65: 100, 1958.
3. Jeffcoate, T. A. A.: *Lancet*, 1: 1045, 1940.
4. Liggins, G. C.: *J. Obst. & Gynec. Brit. Comm.* 69: 277, 1962.
5. Loudon, J. D. O.: *J. Obst. & Gynec. Brit. Emp.* 66: 277, 1959.
6. Martin, R. H. and Menzies, D. N.: *J. Obst. & Gynec. Brit. Emp.* 62: 256, 1955.
7. Ryan, T. J.: *J. Obst. & Gynec. Brit. Emp.* 65: 71, 1958.
8. Toaff, R. and Avalon, D.: *Obst. & Gynec.* 19: 81, 1962.