ON THE APPLICATION OF THE DIRECT INTRAUTERINE TOCOGRAPHY IN OBSTETRICS

M. Yakov, D. Arnaudov

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Contemporary electronic appliances are coming into obstetrics and provide unexpected diagnostic possibilities for the practitioner. They give him new senses to recognize the slightest abnormalities of normal delivery and to detect the earliest signs of fetal suffering. And what is more, only now becomes it possible to present a clear definition of a normal and pathologic labour action based on exact metric criteria as well as to determine the normal ranges of its various parameters. Indications for administration of uterotonic and spasmolytic drugs become more precise, delivery can be more competently controlled, an unjustified operative activity reduces (1—8).

Material and methods

The aim of the present work is to study the diagnostic possibilities of direct measure of intrauterine pressure, the determination of parameters of normal labour action and the investigation of the influence of some drugs upon delivery. The cardiotocograph Hewlett Packard 80300 A and original sets for intrauterine tocography was used in our study. The catheter is introduced into the uterus after amnion incision transcervically and intraamnially by using a special guide-device. It passes between the part of the fetus situated in front and uterus wall by slipping through the fingers of touching hand and reaches back amniotic space. The higher fetus head position by pelvic conducting line the easier catheter introduction. Sometimes the ring of contraction formed on the borderline between lower uterine segment and corpus uteri penetrates strongly into uterine cavity which could make the catheter guide-device introduction rather difficult. If, however, this peculiarity is not familiar and one perseveres a perforation could be done.

Our 103 cases can be divided into the following groups according to the reason for intrauterine catheter introduction: normal delivery — 39 cases, pelvifetal disproportion — 10 ones, labour weakness — 15 ones, preliminarly punctured amnion — 10 ones, cervical dystokia — 10 ones, hyperactive labour — 10, post-maturity pregnancy — 10 ones, and premature delivery — 5 ones. There were 42 women giving birth for the first time and 61 multiparae. 40 women had received oxitocine infusion but 63 ones did not. The metric data obtained by us are presented on table 1.

Results and discussion

The basic tone during the first and second period of birth corresponds with that reported by most authors or lies lower with some mm Hg. Uterine contractions' intensity lies within almost equal ranges during latent and active stage of

the period of opening. This is most probably due to the circumstance that our study covers women in childbirth in the middle and even in the end of latent stage. During the second period of delivery the abdominal wall pressure is added to the intrauterine one due to uterine contractility. Therefore, total intrauterine

Table 1

	1st labour period		latent stage	active stage	2nd labour period	
	Oxytocin application:					
with	without		with	without	with	without
Basic tone in mm Hg	7,3	7,9	9,7	8,8	13,5	12,5
Intensity of uterine contractions in mm Hg	40—70	45—76	50—84	50—80	70—136	72—124
Montevideo units	240	255	265	280	400	380
Uterine Contraction frequency per 10'	3,7	3,1	3,7	3,6	4,0	4,0
Uterine Contraction Duration in seconds	77	74	85	80	95	90

pressure increases up to 100 mm Hg. These considerations are related to the question of the total uterine activity, too. However, our results indicate that the rates of these parameters are significantly higher than those in the literature available. E. g., according to our investigation, mean uterine activity rates are higher than maximal ones which is in concordance, however, with the stronger intensity of uterine contractions as registered by us. In our opinion uterine activity below the level of 150 Montevideo units can not induce a satisfactory delivery progress. An effective labour action can be only considered when at least 200 Montevideo units are reached. Usually the higher basic tone is combined with a higher uterine contractions' intensity and a stronger uterine activity both, but the delivery continues a longer time than that with a lower basic tone. Uterine contractions below 50 mm Hg are rarely effective which necessitates a stimulation of labour action. Contractions' duration also depends on basic tone. Pain is felt at 20—25 mm Hg and even earlier in case of lower basic tone. As it can be seen on the table there are no significant differences between the parameters of spontaneous and stimulated or induced labour action. This is evident for the great value of oxitocine infusion as means used in delivery control.

We studied the influence of some drugs upon labour action because there exists an indefensible apprehension to suppress it by using spasmolytics: We applied both lydol at dose of 50 mg and atropin at dose 0,5 mg in 32 pregnant women. In case of normal tone and normal labour action its character does not change. In case of hypertonic labour action the basic tone decreases with 2 mm Hg. Uterine contractions become less frequent with 0,4 every 10 min. (i. e. 1 contraction

fewer for 25 min.). It is to be noted that lydol administration at the presence of more than 4 contractions for 10 min reduces uterine contractions' intensity at the average with 3 mm Hg. It prolongs the intervals between contractions and increases their intensity. The labour action became weaker in two women which necessitated an oxitocine stimulation.

Buscolysin at dosage of 40 mg was administered in 30 women. It does not possess any effect on basic tone and uterine contractions' intensity. It makes uterine contractions less frequent with 0,2 for 10 min. Non-spa 1 ampulla i. v. was applied in 42 women. It reduced basic tone with 2 mm Hg without reducing uterine contractions' intensity. Both buscolysin and papaverine (at dosages 0,02 and 0,04, resp.) were administered in 32 pregnant women. This combination makes uterine contractions less frequent with 0,2 for 10 min. There is no effect on basic tone and uterine contractions' intensity. Droperidol at dosage of 2 cc was applied in 11 pregnant women. It reduces basic tone with 3 smm Hg and uterine intensity with 15 mm Hg. It also makes uterine contractions less frequent with 1 for 10 min. It is not convenient and it must not be used in normal or hypokinetic labour action.

Conclusions:

1. This method should be more frequently used, especially in dystokiae and long-lasting deliveries.
2. The high basic tone causes usually a longer-lasting delivery.
3. Rare but powerful contractions are more effective than frequent and weak ones.
4. The antispastic medication should be more widely used, especially in primaparae.

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ПРИМЕНЕНИЕ ПРЯМОЙ ВНУТРИМАТОЧНОЙ ТОКОГРАФИИ В АКУШЕРСТВЕ

М. Янков, Д. Арнаудов

РЕЗЮМЕ

Наряду с регистрированием детских сердечных тонов с помощью фетальной фонокардиографии и прямой электрокардиографии, с целью установления внутриматочного давления был использован катетер, введенный трансцервикально. Для записей был использован кардиограф Hewlett Packard 80300A.

Описанным способом было исследовано 103 беременных женщин. Исследования прошли без осложнений. Использование метода очень полезно при родах с гиперреактивной, гипоактивной и гипертонной родовой деятельностью. Метод применяется с успехом и при использовании лекарств с утеротоническим и спазмолитическим действием, а также при индукции родов и при сомнении о пельви-фетальной диспропорции. Одновременно с этим метод способствует уменьшению числа случаев, требующих оперативной актизности и понижению родового травматизма плода.