MANAGEMENT OF SOME ASPECTS OF TWIN LABOR AND DELIVERY

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Our data show that oxytocic perfusion should be liberally given during twin pregnancy labor, since its use is correlated with lower fetal mortality, especially of the second premature twin. This therapy might act, namely, by reducing the number of second-twin abnormal presentations. In our series, the higher mortality rate associated with lengthening of time interval between both births could be attributed to second-twin abnormal presentations. However, mortality rate versus time interval in spontaneous twin deliveries warrants obstetrical management providing second-twin birth within 15 minutes.

Unfortunately, it is not yet within the power of the obstetrician to control every possible factor of the increased fetal hazards known to be associated with twin pregnancy. There are, however, several problems we are able to deal with, by the simple observance of some methodical rules.

To illustrate this statement, I would like mainly to discuss the second-twin delivery, since it has been demonstrated to be definitely burdened with higher fetal loss. This is shown in Table 1, giving figures corresponding to the pool of results from some 50 nonselected reports out of the world literature.

Table 1. *Twin Mortality at Birth* (From Picavet 1967)

No. of twin deliveries	1st twin mortality N	%	2nd twin mortality N	%
19,652	2092	10.6	2818	14.3

The causal factors of this difference can be divided into two groups:

1. *Antepartum*
a. Higher frequency of macerated fetuses
b. Possible higher rate of malformations
2. *Intrapartum*
a. More frequent abnormal presentation generating obstetrical trauma
b. Relative hypoxia consequent to uterine retraction after first birth, with diminished utero-placental circulation and sometimes placental separation.

Since the present paper is mainly concerned with labor and delivery difficulties, we shall consider only intrapartum factors.

Even in small series, such as that presented in Table 2, it appears that the second twin is indeed more often a breech or a shoulder presentation.

Table 2. *Incidence of Presentations*

	1st twin	2nd twin	Total	
			N	%
Vertex	165	118	283	66.4
Breech	43	63	106	24.9
Shoulder	2	26	28	6.6
In toto	0	5	5	1.2
Undetermined	3	1	4	0.9
Total	213	213	426	100.0

These abnormal presentations are of course associated with more frequent major obstetrical interventions performed on the second twin as illustrated in Table 3.

Table 3. *Mortality Rates and Presentation*

	1st twin			2nd twin		
	N	GM	EM	N	GM	EM
Vacuum extraction	13	1	1	11	0	0
Forceps	7	0	0	3	0	0
External version	—	—	—	12	3	1
Kristeller	—	—	—	3	1	1
Breech extraction	6	1	1	16	4	4
Podalic version	3	1	1	21	3	2
Total	29/211 (13.7%)	3/29	3/29 (10.3%)	66/211 (31.3%)	11/66	8/66 (12.1%)

GM = global mortality; EM = epurated mortality rate

As expected, for both twins the epurated mortality rate (EM) is higher than the overall epurated loss rate in the same series, which was of 7.3%. By "epurated mortality rate" versus global mortality (GM), we intend the figure obtained after exclusion of all fetuses being macerated, or weighing less than 1000 g, or severely malformed. The purpose is to evidence the mortality which could possibly be reduced by better obstetrical management.

Table 4. *Mortality Rates and Oxytocics*

	First twin							Second Twin							Total	
	N	<2500 g		>2500 g		Total		N	<2500 g		>2500 g		Total		GM	EM
		GM	EM	GM	EM	GM	EM		GM	EM	GM	EM	GM	EM		
Without oxytocics																
N	161	18	13	1	0	19	13	161	29	15	2	0	31	15	50	28
%			12.5			11.8	8.1			13.5*			19.2	9.3	11.5*	8.6*
With oxytocics																
First stage, N	37	4	1	1	1	5	2	37	2	0	1	1	3	1	8	3
%			5.5			13.5	5.4			0			8.1	2.7	10.8	4.0
Second twin, N	13	2	1	0	0	2	1	13	1	1	1	1	2	2	4	3
%						15.3	7.6						15.3	15.3	15.3	11.5

* P ≃ 0.1

Incidentally, it should be stressed that in the case of a second twin shoulder presentation after the first birth, provided that its membranes are intact, external version must always be tried, since most of the time it can be easily done. In the series presented in Table 3, 10 out of 12 attempts were successful.

By looking at the first stage of labor with reference to the use of oxytocics, we found out that this factor possibly affects the outcome of both children, but especially of the second twin.

In the literature, the problem of oxytocic treatment in twin labor appears to be controverted. One main theoretical argument against it, is that it is dangerous for the second child, since, if it is going to be an abnormal presentation, maneuvers will have to be performed in a contracted uterus. On the other hand, it is clear that very often in twin labor one will have to deal with uterine inertia. In our series, oxytocic perfusion was given during the first stage in 17.4% of twin deliveries against an overall rate in our clinic of about 10%. All these perfusions were maintained at least until the first birth. Table 4 gives the fetal outcome according to whether the mother did or did not receive such a treatment. As it is the policy of our clinic to apply systematically oxytocic perfusion during the second stage in breech cases, there were also 13 second twins, presenting themselves as a breech, who were submitted to this procedure.

From these results it may be seen that, far from being dangerous, oxytocic treatment during the first stage is associated with a better fetal outcome mainly of low-weight second twins but also of the small first twins. There is a least statistical indication that such differences would be meaningful, since those corresponding to an asterisk are endowed with a probability close to 0.1.

The same classification as in Table 4 has been applied with reference to twins who had to be reanimated, or with a low Apgar score (i.e., less than 7). Here again (Table 5) the same trend in favor of the oxytocic group has emerged.

Table 5. *Reanimation Low Apgar Scores and Oxytocics*

	First twin					Second twin					Total	
	N	< 2500 g	> 2500 g	Total N	%	N	< 2500 g	> 2500 g	Total N	%	N	%
Without oxytocics	142	5	3	8	5.6	130	16	6	22	16	30	11
With oxytocics First stage	32	0	0	0	0	35	3	1	4	11.1	4	5.9
Second twin	11	0	0	0	0	11	1	0	1	9	1	4.5

In order to find out what the origin of such differences could be, we have been studying within the three groups the distribution of several factors susceptible to affect fetal prognosis, such as: parity, prematurity, labor duration, time interval between both births. It turned out that the only striking difference lies in the number of major extraction maneu-

vers which is definitely higher in the nonperfused group. This is represented in Table 6, where it is obvious that there are almost four times more breech extractions and internal podalic versions performed on the second twin without oxytocic treatment.

Table 6. *Incidence of Maneuvers*

| | Without oxytocics | | With oxytocics | | | |
| | | | First stage | | Second twin | |
	1st twin	2nd twin	1st twin	2nd twin	1st twin	2nd twin
Breech extractions	3	17 ⎱ 19.2%	1	1 ⎱ 5.4%	0	0
Podalic versions	3	14 ⎰	0	1 ⎰	0	2

So that on the basis of these data we would strongly advocate *liberal use of oxytocic perfusion during the first stage of twin labor.*
The relative hypoxia affecting the second twin has now been demonstrated by several authors on the basis of umbilical-cord blood analysis. Related to this condition, as well as to abnormal presentations, is the crucial problem of the time interval between both births.
In our series there was only a slight nonsignificant increase of second twin mortality when this interval exceeded 15 minutes (Table 7).

Table 7. *Mortality Rates and Interval between Twin Births*

| Interval (minutes) | < 2500 g | | | | > 2500 g | | | Total | | | |
	N	GM	EM		N	GM	EM	GM		EM	
< 15	97	23	10	10.3%	41	1	1	24	17.3%	11	7.9%
15-30	26	7	3 ⎱		17	1	0	8	18.3%	3	6.9% ⎱
30-60	7	0	0	12.8%	10	1	1	1	5.8%	1	5.8% ⎰ 8.7%
> 60	6	2	2 ⎰		3	0	0	2	22.2%	2	22.2%

But, as shown in Table 8, the difference related to this parameter is more prominent when low Apgar scores and reanimated second twins are being considered.
Time interval can also be looked upon from the point of view of obstetrical interventions on the second twin. In Table 9 we have separated minor procedures, whose indications depend on time lapse, from major maneuvers which were mostly decided soon after the first birth because of abnormal presentation or umbilical-cord prolapse. Therefore, the much higher rate of major procedures after 15 minutes must be ascribed to the necessity of waiting for an anesthetist to induct the narcosis which is required in such cases.

Table 8. *Reanimation and Low Apgar Scores and Interval between Twin Births*

Interval (minutes)	< 2500 g	> 2500 g	Total N	%	
< 15	13	3	16/114	14.0	
15-30	5	3	8/35	22.8	
30-60	2	1	3/16	18.7	} 22.4
> 60	1	1	2/7	28.5	

Table 9. *Incidence of Maneuvers on Second Twin*

Maneuvers	Interval (minutes) 0-15	15-30	30-60	> 60
Vacuum extraction	5	0	1	2
Forceps	1	0	1	1
Others	2	2	0	0
Total	8/138 (5.8%)	7/69	(10.1%)	
Breech extraction	7	4	2	3
Podalic version	6	8	4	1
Total	13/138 (9.4%)	22/69	(31.8%)	

Confirming this interpretation is the higher rate of abnormal presentations associated with longer intervals as shown in Table 10. Particularly meaningful in this sense, is the observation that 8 of the 11 shoulder presentations being delivered before 15 minutes correspond to successful external versions.

Table 10. *Presentation Rate*

Presentation	Interval (minutes) 0-15	15-30	30-60	> 60
Vertex	82	17	6	5
Breech	41 (30.5%)	14	7	3
		24/68	(35.2%)	
Shoulder	11 (8.2%)	9	4	1
		14/68	(20.5%)	
Total	134	68		

From such results one might be tempted to believe that the correlation between longer interval and higher risk to the second twin merely reflects the time consumed to perform traumatic interventions, and that, therefore, waiting for the second birth to occur is not dangerous by itself if the presentation is normal. Such a conclusion would be quite wrong since when the duration of the interval between both births is considered, only in spontaneous deliveries is it found that the same higher mortality correlates with longer delay. This is shown in Table 11, taken from Picavet (1967), where it is clear that after 10 to 15 minutes the mortality rate of the second twin steadily increases with time.

Table 11. *Spontaneous Deliveries of Both Twins* (From Picavet 1967)

Interval (minutes)	No. of deliveries	1st twin loss	2nd twin loss	2nd twin mortality rate (%)
< 5	82	7	8	9.7
6-10	134	11	13	9.7
11-15	61	5	8	13.1
16-30	56	3	8	14.2
31-60	32	3	6	18.7
> 60	15	2	3	20.0

Last but not least, it has moreover been demonstrated that there will also be more hemorrhages of the third stage when the delay between both births exceeds 15 minutes (Table 12).

Table 12. *Percent Frequencies of Third-Stage Hemorrhage* (From Picavet 1967)

Spontaneous birth of both twins		Intervention on both twins		Intervention on 2nd twin only	
< 15 min.	> 15 min.	< 15 min.	> 15 min.	< 15 min.	> 15 min.
6	12	25	40	7	16

We may thus say that, whatever the obstetrical conditions are, *it is compulsory that the second twin should be born within less than 10 to 15 minutes after the first one*. It is fair to acknowledge that Gernez and Omez in France had reached this conclusion as early as 1938, basing their opinion on sound statistical grounds.

Finally, we would thus suggest the following rules of management in twin labor and delivery:

1. Use of oxytocic perfusion whenever there is indication of uterine inertia during the first stage.
2. Presence of an anesthetist at any twin delivery.
3. Management of first-twin delivery as in single pregnancies.

4. Ascertaining of second-twin presentation after first birth:

a. If a shoulder:
— arrest of oxytocic perfusion;
— attempt of external version followed by immediate rupture of membranes;
— if failure, immediate podalic version under anesthesia.

b. If longitudinal:
— quick rupture of membranes and second control of presentation;
— oxytocic perfusion of the second stage;
— if no delivery is obtained within 15 minutes after the first birth, instrumental or manual extraction of second twin.

5. Management of third stage as in single pregnancies.

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