PROGNOSIS FOR THE NEWBORN FROM MULTIPLE PREGNANCY

R. OSUCH-JACZEWSKA, O. LEMPART, Z. OCHABSKA
Department of Obstetrics and Gynecology, Silesian Academy of Medicine, Bytom, Poland

A total of 669 newborns from multiple pregnancies, including 15 triplets, have been examined. Full-term fetuses were 19.3% premature ones 60.7%, and dystrophic ones 20%. Of these, 58.4% were born in good conditions, 25.1% in average conditions (4-7 Apgar scores), and 16.4% in bad conditions (1-3 Apgar scores). Complications in the neonatal period were reported in 38.7% of cases (respiratory syndrome 21.2%, CNS injury 4.8%, developmental defects 1.3%, other complications 9.3%).
Twin mortality amounted to 10.5%, mainly due to hypoxemia (7.2%), cerebral lesion (2.4%), developmental defects (0.4%), and general edema (0.5%).

Prognosis for a newborn from multiple pregnancy is a very controversial subject in the literature and there are conflicting attitudes especially with regard to the risks threatening the first and second twin, their mortality or development. Some feel that both twins are exposed to the same hazards (Graves et al. 1962), while others think that the chance of survival is greater for the first than for the second twin (Carston 1957, Lister 1958); numerous reports indicate a higher incidence of damages and mortality in the second twin (Spurway 1962, Slomko and Kuczynski 1965*a*, Skalba et al. 1972).
The purpose of this study is to analyse the conditions of twins after delivery during their neonatal period, and their mortality with reference to a series of factors (degree of asphyxia, maturity, sex, weight).

An analysis was undertaken of the development of 669 newborns from multiple pregnancies, including 15 triplets, born from 1962 to 1972 in the 2nd Clinic of Obstetrics and Gynecology of the Silesian Academy of Medicine in Bytom. Conditions of the infants after birth were assessed according to the Apgar score, while the degree of maturity was determined by means of the scheme by Farr et al. (1966). Conclusions on the neonatal development were drawn from clinical observations, neurological and auxiliary examinations.

RESULTS

Table 1 shows that there were 358 same-sex twins (53.5%) and 311 opposite-sex ones. Mortality in same-sex twins is 7.0% higher than in opposite-sex ones. Table 2 gives the deaths of first and second twins according to birth weight. Mortality in infants with a low birth weight accounts for 17.9% and it rises in line with the decreasing weight of the fetus from 1500 g down, the death of the second twin occurring 8.4% more frequently.

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Table 1. *Neonatal Mortality in Twins by Sex*

	Females		Males		Total	
	N	%	N	%	N	%
Same-sex pairs [N = 358]						
Survival	147	87.50	132	83.5	279	85.6
Deaths	21	12.5	26	16.5	47	14.4
Total	168	51.5	158	48.5	326	100.0
Opposite-sex pairs [N = 311]						
Survival	147	91.3	122	93.1	269	92.1
Deaths	14	8.7	9	6.9	23	7.4
Total	161	55.1	131	44.9	292	100.0

Note: Twins born below 1000 g (16 F + 16 M same-sex, and 13 F + 6 M opposite-sex) are excluded.

Table 2. *Twin Mortality in Relation to Birth Order and Weight*

Weight	First twin			Second twin			Total		
	N	Deaths	%	N	Deaths	%	N	Deaths	%
< 1000	26	25	96.1	25	24	96.0	51	49	96.0
1001-1250	13	7	53.8	12	8	66.6	25	15	60.0
1251-1500	25	11	44.0	23	16	69.6	48	27	56.0
1501-2000	53	6	11.3	68	16	23.5	121	22	18.2
2001-2250	98	2	2.0	77	—	—	175	2	1.1
Total	189	26	13.8	180	40	22.2	369	66	17.9
2251-2500	48	—	—	54	4	7.4	102	4	3.9
2501-3000	52	—	—	46	—	—	98	—	
> 3000	19	—	—	30	—	—	49	—	
Total	119	—	—	130	4	3.0	249 (37.3)	4	1.6
Grand total	334	51	15.3	335	68	20.3	669	119	17.8

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Mortality in infants with birth weight exceeding 2250 g is 1.6% and concerns the second twin only.

The correlation of the condition of the newborns after delivery assessed by Apgar score, by degree of maturity and course of the infancy period, is presented in Table 3, showing that full-term fetuses were 19.3%, premature ones 60.7%, and dystrophic ones 20.0%. At birth 58.4% of them were in good conditions, 25.1% in average conditions (4-7 As), and 16.4% in bad conditions (1-3 As). Of these, 88.1% were premature, 10.0% dystrophic, and 1.8% at-term twins; 6.4% from this group died.

Table 3. *Course of Neonatal Period and Newborn Conditions*

		Apgar score			Total	Deaths
		1-3	4-7	8-10		
On term	N	2	9	118	129	—
	%	1.8	5.3	30.2	19.3	—
Small-for-dates	N	11	17	106	134	16
	%	10.0	10.1	27.1	20.0	11.9
Premature	N	97	142	167	406	54
	%	88.1	84.5	42.7	60.7	13.3
Total	N	110	168	391	669	70
	%	16.4	25.1	58.4	100.0	10.5
Course of neonatal period						
Uncomplicated	N	—	37	373	410	—
	%				61.3	
Complicated	N	110	131	18	259	—
	%				38.7	
Respiratory syndrome	N	68	79	5	142	48
	%				21.2	7.2
Congenital malformation	N	2	4	3	9	3
	%				1.3	0.4
Cerebral lesion	N	20	12	—	32	16
	%				4.8	2.4
Hydrops universalis	N	2	—	—	2	3
	%				0.3	0.5
M. hemoliticus neonat.	N	—	2	—	2	
Others	N	18	34	10	62	
	%				9.3	
Deaths	N	43	27	—		70
	%	6.4	4.0			10.5

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Table 4. *Congenital Malformations and Birth Order in Multiple Pregnancy*

Malformation	Birth order	Weight	Sex	Treatment	Deaths
Chelioschisis	II	1780	M	operatory	—
Teratoma	II	3500	M	operatory	—
Congenital heart defect	I	2300	M		—
Congenital sight defect	II	2100	M		—
Acranius	III	360	F		—
Congenital heart defect	I	2160	F		—
» » »	I	2800	M	operatory	—
» » »	II	2600	M		—
» » »	I	1650	M (from MF pair)		—
Down's syndrome	I	1900	M		+

Complications in the neonatal period occurred in 38.7%, the most frequent being respiratory syndrome complications in infants born in bad and average conditions (21.2%), CNS injury (4.8%), developmental defects (1.3%), and other complications (9.3%).
Infant mortality was 10.5%, the most frequent causes of death being hypoxemia (7.2%), cerebral lesion upon delivery (2.4%), developmental defects (0.4%), and general edema (0.5%). Table 4 shows the defects found in the twins.

DISCUSSION

Twin mortality in our own material attains 10.5% and is within the limits set by other authors (Anderson 1956, Lister 1958, Graves et al. 1962, Spurway 1962, Sparling 1964, Slomko and Kuczynski 1965, Statistical Atlas on Public Health 1970). Mortality is significantly high in same-sex twins (13.4), and opposite-sex twins (7.4%). Similar data are given by other authors too (Slomko and Kuczynski 1965*a*, Statistical Atlas on Public Heath 1970), while Sparling (1964) reports a difference of 14.1% between death rates of same-sex and opposite-sex twins. The above figures are justified by the irregularities of the umbilical cord and placenta. The percentage of the newborns with serious asphyxia in our material was 16.4%, due to both prematurity (88.1%) and higher rate of occurrence of pregnancy and delivery complications (8%).
Twin prematurity and dystrophy problems are extensively reported in the literature by many authors; they were shown to occur in 40.0-60.0% of cases (Lister 1958, Potter 1963, Slomko and Kuczynski 1965, Statistical Atlas on Public Health 1970). The high percentage of premature twins results into an extended stay of the infants in the Ward - on the average up to 22 days. The longest hospital stay recorded for twins was 69 days, the twins were bisexual and had the lowest birth weight (780 and 890 g) and they were successfully kept alive. We defined 60.7% of our newborns as premature and 20.0% as dystrophic. Weight differences exceeding 1000 g between the first and second twin were found in 2.1% of cases (Table 5). According to most authors (Potter 1963, Slomko and Kuczynski 1965*a*) these are mainly due to the pathology of placenta.

Table 5. *Weight Differences between First and Second Twin*

Difference (g)	N	%
No difference	172	51.8
< 300	87	26.2
301-500	47	14.2
501-1000	19	5.7
> 1000	7	2.1
Total	160	48.2

The neonatal period and twin mortality are closely related to the conditions after delivery, prematurity and dystrophy; the above newborns are described in the English literature as " risk children ".
It is noteworthy that a high rate of malformations, up to 1.3%, was found in the group of same-sex twins. In Potter's opinion premature delivery and developmental disorders are found more frequently in MZ twins though their cause is not yet clear.

It may be concluded that the prognosis of a newborn from multiple pregnancy is closely related to prematurity and dystrophy, which contribute to the increasing complications during the neonatal period and the high twin mortality.

Dr. Rozalia Osuch-Jaczewska, Kochanowskiego 18, 40-035 Katowice, Poland.

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