TWIN PREGNANCY AS A HIGH RISK PREGNANCY
New Medical Statistical Data from the German Democratic Republic

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In 1972 the rate of multiple births showed a much more substantial decrease than in the years before. In the period 1963-1971 it dropped from 20.3‰ to 19.3‰ and in 1972 to 18.3‰. The frequency of low birth weight in children from a multiple birth is 10 times higher than in all newborn children and the early neonatal mortality of children from a multiple birth is 8 times higher than that of all newborn infants. Cerebral damage is 30 times higher in children of low birth weight than in children of normal birth weight. In the period 1965-1967 perinatal death associated with cerebral damage (recorded on the death certificate) accounted for 5.7% of all children of low birth weight and for 0.2% of children weighing at birth over 2500 g. Eearly diagnosis of multiple pregnancy and early in-patient care of women with multiple pregnancy will improve the development of multiple fetuses and give children from a multiple birth much better chances in life. In all twin studies it has to be considered that a relatively high proportion of twins is affected to a higher or lesser degree by cerebral damage.

In the GDR statistics of births and infant deaths are collected and examined annually by the Central Statistical Office (Staatliche Zentralverwaltung für Statistik). Therefore a considerable amount of information about multiple births is available which is based on a population of 17 million and an annual number of births ranging from about 300,000 to about 180,000 in the period 1953-1973. The information provided comprises the number and frequency of multiple births, their sex, weights, stillbirth rate and the maternal age (Statistische Jahrbücher der DDR 1971, 1972, 1973).

Among the total births the proportion of infants from a multiple birth has been steadily decreasing in the GDR over the past 20 years. In 1953 this proportion was 2.25%; however in 1973 it was only 1.84% (Table 1). In the same period the number of births dropped from 304,859 to 181,974. The decrease in the number of births was accompanied by a decreasing number of mothers in the higher age groups and an increase in the number of younger mothers. For example, in 1969 the proportion of mothers in the age group 30-35 was 14.6% while it was 11.2% in 1973. In the same period the proportion of mothers in the age group 20-25 increased from 32.3 to 47.9%.

An increase in the rate of multiple births going along with an increasing maternal age can be shown for each calendar year (Table 2). In the GDR the multiple birth rate of women aged 35-40 is almost three times higher than that of women in the age group 15-20. Whether there is a decrease in the multiple birth rate of women over 40 years of age held by Lenz (1954) and other authors can be neither confirmed nor rejected because of the small number of mothers in this age group.

The decrease in the multiple birth rate from 1.93% in 1971 to 1.83% in 1972 and to 1.84% in 1973 can be attributed to the fact that a considerable proportion of older women passes out of reproduction, with a relative increase of younger mothers at the same time. This trend is due to the liberalization of abortion and the free availability of oral contraceptives since 1972. As a result the decrease in the multiple birth rate during only one year was the same as during eight preceding years (2.03% in 1963, 1.93% in 1971, 1.83% in 1972). Data showing a relation of the multiple birth rate to the birth order are not available. The birth order might partly determine the relation to the age because older women will usually have higher birth orders.

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The stillbirth rate of infants from a multiple birth was reduced from 55.2‰ in 1953 to 25.1‰ in 1973. Their stillbirth rate is almost three times higher than that of the total births (Table 3).
Low birthweight present a high risk to infants from a multiple birth. About 60% of all infants from a multiple birth have a birthweight of up to and including 2500 g (Table 4). In 1972 the low birthweight rate of liveborn infants from a multiple was 58% which was ten times higher than the rate of all liveborn infants which was 5.86%. The low birthweight of infants from a multiple birth is the result

Table 1. *Proportion of all multiple births related to total births - GDR*

Year	Total births	Children from multiple births	Rate %
1953	304,859	6,861	2.25
1963	305,757	6,206	2.03
1967	255,759	4,997	1.95
1968	247,946	4,979	1.93
1969	241,519	4,735	1.96
1970	239,431	4,704	1.96
1971	237,306	4,575	1.93
1972	202,301	3,701	1.83
1973	181,974	3,344	1.84

Table 2. *Children from multiple births related to maternal age - GDR 1969, 1972, 1973*

Maternal age	Children from multiple births			
	1969 ‰	1972 ‰	1973 ‰	1973 n
15 to under 20	11.71	11.52	10.92	357
20 » » 25	15.70	15.32	15.96	1,374
25 » » 30	21.36	21.46	22.26	710
30 » » 35	25.52	25.22	27.65	559
35 » » 40	30.82	28.64	29.60	228
40 and over	26.69	30.25	20.26	27
Total	19.82	17.98	18.08	3,260

of their shorter gestational age and their hypotrophic intrauterine development caused by a disproportion between the placenta and the fetuses leading to malnutrition and an insufficient oxygen supply.
Among infants from a multiple birth the number of male infants is also higher than that of the female infants. In 4 out of 28 years (1946-1973), however, the sex proportion was reversed and more female than male infants from a multiple birth were born. This trend was especially marked in the year 1969 with its two influenza epidemics. We assume that this development in 1969 might have been caused by the fact that part of the male fetuses was not only exposed to the already existing two

Table 3. *Stillbirth rate of multiple births and of total births - GDR*

Year	Children from multiple births	Stillborn children from mult. births		Stillborn children of total births
		n	‰	‰
1952	7,041	389	59.2	21.2
1957	5,896	274	46.5	16.3
1962	6,059	246	40.6	14.5
1967	4,997	163	32.6	11.5
1968	4,797	163	34.0	11.3
1969	4,735	148	31.3	10.8
1970	4,704	160	34.0	10.4
1971	4,575	132	28.9	9.8
1972	3,701	100	27.0	9.2
1973	3,344	84	25.1	9.0

Table 4. *Children of low birth-weight of total and from multiple births - GDR 1967-1973*

Year	Children of low birth-weight of total births per 100 total births	Children of low birth-weight from multiple births per 100 multiples
1967	5.93	55.79
1968	6.02	56.54
1969	6.30	56.96
1970	6.36	58.08
1971	6.33	57.79
1972	6.26	58.55
1973	6.81	60.53

Table 5. *Groups of birth weight of total live births and of children from multiple births — GDR 1969, 1972, 1973*

Birth weight (g)	Percentages					
	1969		1972		1973	
	Total live births	Children from multiple births	Total live births	Children from multiple births	Total live births	Children from multiple births
up to 1000	0.27	1.92	0.11	1.58	0.12	1.01
1001-1500	0.55	6.47	0.46	6.83	0.51	7.88
1501-2000	1.23	17.38	1.15	17.63	1.27	17.70
2001-2500	3.80	30.43	4.14	31.88	4.50	33.56
2501-3000	18.00	31.28	19.54	29.88	20.49	29.39
3001-3500	38.89	10.81	40.18	10.75	40.53	9.17
3501-4000	28.25	1.59	26.76	1.31	25.88	1.26
4001-4500	7.77	0.09	6.69	0.11	5.90	0.03
4501-5000	1.10	0.02	0.86	0.03	0.72	—
5001-5500	0.12	—	0.11	—	0.09	—
3500 or more	0.02	—		—	—	—

risks — male sex and multiple pregnancy — but that a third risk presented by maternal influenza infection was added. The result was an increased frequency of intrauterine death, disintegration or expulsion of male fetuses which occurs in part of all multiple fetuses (v. Verschuer, Martius 1964, Leetz 1972 and 1973, Griffith et al. 1972). The mortality of infants from a multiple birth was calculated until 1969. It has to be assumed, however, that there was practically no decrease in the mortality rate of infants from a multiple birth since 1969, whereas the mortality rate of all infants could be substantially reduced and was 15.6% in 1973. The mortality of both infants from a multiple birth and all newborn infants depends directly upon the level of fetal development which can be measured in terms of birthweight. Between 1969 and 1972/73 there has been no favourable development of the birthweight pattern of infants from a multiple birth (Table 5). The proportions of infants from a multiple birth with a low birthweight of 1001-2000 g which is associated with a high mortality increased and those with a high birthweight associated with a low mortality decreased.

In 1969 the early neonatal mortality rate of infants from a multiple birth was with 95.7‰ eight times higher than the rate for all newborn infants which was 12.4‰. Among the early neonatal deaths the proportion of infants from a multiple birth was 15.3% in 1969 while among the livebirths their proportion was only 2.0%. The total loss of infants from a multiple birth — stillbirths and infant deaths — was 143‰ in 1969. As the multiple births were mostly twin births this means that every seventh twin child died or that every third or fourth twin pregnancy resulted in one dead child.

The disproportion between the placenta and the fetuses which is quite frequent in multiple pregnancy may also result in cerebral damage. The frequency of cerebral damage is 30 times higher in deceased infants of low birthweight than in infants weighing at birth 2500 g or more. The recorded data on the death certificates revealed that in the period 1965-1967 cerebral damage was present in 5.7% of all low birthweight infants dying in the perinatal period and that this condition was present in only 0.2% of all infants weighing at birth 2500 g or more. Cerebral damage in the surviving twin children puts a heavy burden on the child, the family and society. In all twin studies it has to be borne in mind that a relatively high proportion of twins is more or less severely affected by cerebral damage. The risks to multiple pregnancy — ten times higher low birth-weight rate, three times higher stillbirth rate, eight times higher early neonatal mortality and increased occurrence of cerebral damage — can be diminished. International experience has shown that bed rest during pregnancy leads to an optimal

circulation of the uterus and the placenta improving the nutritional state of the multiple fetuses and prolonging their gestational ages. As a result their birthweights increase, and they have a better chance of survival. These measures were carried through, for example, by the Obstetrical and Gynaecological Department of the University of Debrecen Medical School. The average birth-weight of the newborn infants was increased by more than 500 g and the high rate of low birthweight in multiple pregnancy was reduced to 16.6% (Komaromy and Lampe 1969).

Early diagnosis of multiple pregnancy and early in-patient care of women with multiple pregnancy will improve the development of multiple fetuses and give children from a multiple birth much better chances in life.

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