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Mortality Rate of Japanese Twins and Triplets

III. Infant Deaths of Triplets After Birth to One Year of Age

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The rate of infant mortality of triplet individuals (deaths under one year of age) was computed using 34 sets of triplets born in the first half of 1974. The rates were 8.82%, 9.68%, and 10.34% for the first-, second-, and the third-born triplets, respectively. For males and females the rates were 8.33% and 10.34%, respectively, and the difference was not significant. The rate decreased with gestational age up to 32–35 weeks. For those with heavier weight at birth ($\leq 2,000$ g) the rate was lower (0%) than for those with lighter weight ($< 2,000$ g, 8.16%), but the difference is not significant ($P = 0.087$). Infant mortality rate of triplets decreased with increased monthly expenditure of the household.

Key words: Infant mortality, Triplets, Socioeconomic factors

INTRODUCTION

The present article reports the rate of infant mortality of triplets (deaths under one year of age). It also deals with the effects of the birth order of triplets, sex, gestational age, birth weight, and monthly expenses of the household on the rate of infant mortality of triplets.

MATERIALS

Data for this report were obtained from original records of Survey B of Socioeconomic Aspects of Vital Events-Plural Births in 1975 (Health and Welfare Statistics and Information Department, Ministry of Health and Welfare), which includes information on 4,361 sets of Japanese multiple births including 34 triplet births in the first half of 1974. Some details of the survey were also reported elsewhere [1,2,4].

RESULTS

Thirty-four triplet sets were classified according to survival status at birth (three live-born, two live-born, and one stillborn, one live-born, and two stillborn), survival status at age 12 months and sex combinations (Table 1). Overall rate of infant mortality of triplet individuals was 9.57% (9/94). Table 2 shows the infant mortality rate of triplet individuals according to birth order and sex. Infant mortality rates increased with the order of birth. They were 8.82%, 9.68%, and 10.34% for the first-, second-, and the third-born triplets, respectively, and the differences among them were significant ($P=0.008$, Sato's test of noncorrelation [5]). The rates were 8.33% and 10.34% for males and females, respectively, the difference being not significant.

TABLE 1. Number of Triplet Sets According to Survival State and Sex Composition

At birth	At 12 months			Sex composition	Number of triplet sets
LLL	SU	SU	SU	MMM	5
				MMF	1
				MFM	2
				FMM	4
				FFM	1
				FFF	12
				FFF	1
LLS	SU	SU	DE	FFF	1
				FFF	1
				MMF	1
				FFF	1
				MMM	1
LSL	SU	SU	SU	FFM	1
				MMM	1
LSS	SU	DE	DE	FMM	1
				FFF	1
Total					34

L: live birth; S: stillbirth; SU: surviving; DE: death.

TABLE 2. Infant Mortality Rate of Triplet Individuals According to Order of Birth and Sex, 1974

		At 12 months	Number of triplets	Infant mortality
Order of birth	1st born	Surviving	31	0.0882
		Dead	3	
		Total	34	
	2nd born	Surviving	28	0.0968
		Dead	3	
		Total	31	
3rd born	Surviving	26	0.1034	
	Dead	3		
	Total	29		
Sex	Male	Surviving	33	0.0833
		Dead	3	
		Total	36	
	Female	Surviving	52	0.1034
		Dead	6	
		Total	58	

Table 3 shows the number of triplet individuals surviving or dead at age 12 months and the rate of infant mortality by gestational age. The rate decreased with gestational age except for the group 36–39 weeks. The lowest infant mortality rate (2.13%) was seen in the gestational age group 32–35 weeks.

Table 4 shows the infant mortality rates of triplet individuals according to birth order and weight at birth. Triplet individuals were divided into two groups, < 2,000 g and ≥ 2,000 g. The infant mortality rate was 0 in the latter group for any birth order, while in the former group overall rates were 8.16%, the difference being nonsignificant (P = 0.087, Fisher’s exact test). For the first-, second-, and the third-born triplets, the rates were 11.76%, 6.25%, and 6.25%, respectively.

Table 5 shows infant mortality rate of triplet individuals according to monthly expenditure of the household. The infant mortality rates were 17.65%, 10.00%, and 3.70% for the classes < 80,000 yen, 80,000–120,000 yen, and > 120,000 yen, respectively, indicating a decrease of the infant mortality rate with increased monthly expenditure, but the difference does not reach significance level (P = 0.051, Sato’s test of noncorrelation [5]).

TABLE 3. Rate of Infant Mortality of Triplet Individuals According to Gestational Age

At birth	At 12 months	Gestational age (weeks)				Total
		24–27	28–31	32–35	36–39	
Live birth	Surviving	0	4	46	35	85
	Dead	4	2	1	2	9
	Total	4	6	47	37	94
Infant mortality		1.0000	0.3333	0.0213	0.0541	0.0957

TABLE 4. Infant Mortality Rate of Triplet Individuals According to Weight at Birth

Birth order		Weight at birth (g)			Total
		<2,000	≥2,000	UK ^a	
1st born	Surviving	15	16	0	31
	Dead	2	0	1	3
	Total	17	16	1	34
	Infant mortality rate	0.1176	0		0.0882
2nd born	Surviving	15	13	0	28
	Dead	1	0	2	3
	Total	16	13	2	31
	Infant mortality rate	0.0625	0		0.0968
3rd born	Surviving	15	11	0	26
	Dead	1	0	2	3
	Total	16	11	2	29
	Infant mortality rate	0.0625	0		0.1034
Total	Surviving	45	40	0	85
	Dead	4	0	5	9
	Total	49	40	5	94
	Infant mortality rate	0.0816	0		0.0957

^aBirth weight is unknown.

TABLE 5. Number of Triplet Sets and Infant Mortality Rate of Triplet Individuals According to Monthly Expenditure

At birth	At 12 months	Monthly expenditure (yen)			Total
		<80,000	≥80,000 <120,000	≥120,000	
LLL	SU SU SU	4	14	7	25
	SU SU DE	0	0	1	1
	SU DE DE	1	0	0	1
	DE DE DE	0	1	0	1
LLS	SU SU	0	1	0	1
	SU DE	1	0	0	1
	DE SU	0	1	0	1
LSL	SU SU	0	0	1	1
LSS	SU	0	0	1	1
	DE	0	1	0	1
Total		6	18	10	34
Infant mortality rate		0.1765	0.1000	0.0370	0.0957

L: live birth; S: stillbirth; SU: surviving; DE: death.

DISCUSSION

As far as the present authors are aware, there has been no previous study on the infant mortality rate of triplets. In the present study, the rate of infant mortality (death under one year of age) of triplet individuals was 9.57%, ie, twice as high as that of twins, 4.71% in Japan for the same period, the first half of 1974 [2].

Infant mortality rate increased with birth order (Table 2) and decreased with gestational age up to 32–35 weeks (Table 3). The rate was lower in the group with heavier weight than in that with lighter weight at birth (Table 4). As to monthly expenditure of the household, higher class indicated lower infant mortality rate (Table 5). The same tendency was seen in MZ twins [2], suggesting that socioeconomic factors play an important role in the mortality rate for the twin and triplet children born with prenatal and perinatal handicaps.

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