26. *The Chromosome Fragility in the Parents and their Babies*

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Previously, the authors reported the fragile sites on 29 cases of newborns and on 30 cases of aged women (Kadotani *et al.*, 1988). And it was suggested that the incidence of the cells having fragile sites was different in the individual case not depended on aging. This paper is represented on the 39 cases of 13 groups consisting of the parents and their babies with normal phenotypes, in order to reveal the relation of the frequency of the chromosome fragility and the aneuploidy between the parents and their babies.

Cytological findings. The lymphocytes from the peripheral blood on the 26 cases of the phenotypically normal parents and from the vein of umbilical cord on their 13 normal babies were cultured for 72 hours in the medium of minimal essential medium without folic acid (MEM-FA) supplemented with 5% calf serum (Sutherland, 1979). Additionally the half of cells were exposed to 2.2 mM caffeine during the last 6 hours of the culture (Yunis and Soreng, 1984). The slides were made by means of the flame-drying technique. The chromosome observations were made with the frequency of the break and/or gap with 50 well-delineated metaphases for each subject by the culture with and without caffeine.

The total cells of 3898 cultured in the medium of MEM-FA and in MEM-FA with caffeine were observed (Table I). Out of 3898 cells, 1950 cells were in MEM-FA, and 1948 cells were in MEM-FA with caffeine. On the frequencies of the cases having chromosome fragility in two different medium; MEM-FA and MEM-FA with caffeine, the frequency in MEM-FA with caffeine were statistically higher than in MEM-FA.

On the frequencies of chromosome break points and of the cells with break points, the frequencies in the father were a little higher than in the mother and in the baby, and the frequencies in the baby were a little lower than in the father and in the mother. The relation of the frequencies of chromosome break points and of the cells with break points between the father, the mother and the baby could not be recognized.

Remarks and conclusion. Previously the frequencies of the chromosome break points were studied on 30 aged women and on 29 newborns in the medium MEM-FA with and without caffeine (Kadotani *et al.*, 1988). And it was shown that the frequency of the cases having the fragile sites was higher in the medium MEM-FA with caffeine than in MEM-FA on the both groups of newborns and aged women and the incidence of the cells having fragile sites was different in the individual case not depended on aging.

In this study, we studied the relation of the frequencies of chromosome

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Table I. The frequencies of the break points on the parents and babies in the medium of MEM-FA and of MEM-FA with caffeine

Case no.	MEM-FA				MEM-FA + caffeine				
	ob. cell	b. p.	b. p. cell	s. b. p. cell	ob. cell	b. p.	b. p. cell	s. b. p. cell	
1	B	50	22	16	0	50	142	30	1
	F	50	6	5	0	50	29	13	0
	M	51	6	6	0	50	3	3	0
2	B	50	1	1	0	50	7	6	0
	F	50	3	3	0	50	34	20	0
	M	50	6	5	0	50	37	15	0
3	B	50	18	15	0	50	28	15	0
	F	50	22	14	0	49	33	21	1
	M	50	0	0	0	50	16	10	0
4	B	50	7	6	0	50	8	8	0
	F	50	9	7	0	50	22	15	0
	M	50	4	4	0	50	10	6	0
5	B	50	2	2	0	50	9	8	0
	F	50	11	8	0	50	63	29	2
	M	50	6	4	0	50	44	24	0
6	B	50	2	2	0	50	8	7	0
	F	50	8	7	0	50	94	32	1
	M	50	11	6	0	50	49	16	0
7	B	50	4	4	0	50	30	14	0
	F	50	6	6	0	50	29	15	0
	M	50	3	2	0	50	9	7	0
8	B	50	12	9	0	50	97	37	2
	F	50	14	9	0	50	38	20	1
	M	50	5	5	0	50	73	21	1
9	B	50	1	1	0	50	8	5	0
	F	50	10	7	0	50	35	17	0
	M	49	4	3	0	50	34	14	0
10	B	50	4	4	0	50	9	8	0
	F	50	33	20	0	50	514	47	6
	M	50	9	7	0	49	45	22	0
11	B	50	10	4	0	50	0	0	0
	F	50	0	0	0	50	41	19	0
	M	50	8	8	0	50	69	20	1
12	B	50	0	0	0	50	7	4	0
	F	50	5	4	0	50	156	38	1
	M	50	4	3	0	50	9	7	0
13	B	50	1	1	0	50	4	4	0
	F	50	5	4	0	50	31	13	0
	M	50	5	5	0	50	68	26	0
Total	B	650	84	65	0	650	357	146	3
	F	650	132	94	0	649	1119	299	12
	M	650	71	58	0	649	466	191	2

ob.cell: observed cell. b.p.: break point. b.p.cell: break point cell. s.b.p.cell: severe break point cell. B: baby. F: father. M: mother.

break points and of the cells with break points between the parents and their babies. Out of 13 fathers, two cases had more break points and the cells with break points than others. But their babies were not significantly different than the other babies.

On the folate sensitive rare fragile site (Sutherland and Mattei, 1988), the relation between the parents and their babies was not recognized.

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