

Twins with Mental Retardation and Physical Abnormalities

Preliminary report

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In this preliminary report, which is part of a wider and more detailed study still in progress, I am reporting mainly the twins' mental state and associated physical abnormalities. For this purpose, I am surveying all the 2442 long-stay patients admitted during 30 years (1 September 1938 - 31 August 1968) to the Stoke Park Hospital Group, Bristol, which provides 1800 beds for mentally retarded patients of both sexes and of all ages. The survey's sample is shown in Tab. I.

Tab. I. Twin sample

Sex	Mental conditions	N. of pairs
	MZ ♂♂, both mentally retarded	1
	MZ ♀♀, both mentally retarded	5
	Concordant ♀♀, both mentally retarded	1
♂♂ or ♀♀ pairs	Mentally retarded ♂, cotwin normal	8
	Mentally retarded ♀, cotwin normal	4
	Mentally retarded ♂, cotwin died at 6 hrs., 6 days and 14 mths. respectively	3
♂♀ pairs	Mentally retarded ♂, cotwin ♀ normal	4
	Mentally retarded ♀, cotwin ♂ normal	5
	Mentally retarded ♀, cotwin ♂ died at birth	1
♀? pair	Mentally retarded ♀, cotwin sex unknown	1
	Total	33

MZ TWINS. The following are brief notes on the relevant findings in the six pairs of MZ twins who suffer from mental retardation.

MZ twin pair N. 1. They are both of small stature (R. 155 cm, P. 160 cm), with a degree of microcephaly and dolichocephaly, respectively; both have slight hypertelorism

Tab. II. MZ twin sample

Twin pair	Date of birth	Birth history	Birth weight (g)	I.Q.	Blood groups	Age of parents at birth	
						Mother	Father
1. ♂♂, R. & P.	15.7.48	One month premature	2040 2040	33 32	Identical: A Rh positive CDe/cde Fy ^a M N P ₁ Le ^a S positive Kell Le ^b Lu ^a negative	27	32
2. ♀♀, D. & J.	16.3.38	6-7 weeks premature	2610 2610	15 15	Identical: B Rh positive CDe/cDE N Le ^b positive S Lu ^a Kell Duffy M Le ^a negative	30	30
3. ♀♀, M. & V.	14.7.40	1 week premature; breech delivery	1810 1810	39 47	Identical: A ₁ Rh positive CDe/cde MSP ₁ Le ^b positive N Le ^a Kell Fy ^a negative	23	38
4. ♀♀, M. & P.	1.5.43	Twins and mother jaundiced for nearly 3 weeks	2600 2270	15 15	Not available	23	25
5. ♀♀, L. & V.	18.4.25	3 weeks premature	2220 2220	48 47	Identical	34	33
6. ♀♀, D. & M.	11.11.41	Not available	Not available	72 69	Not available	Not available	Not available

and pectus excavatum. Urine chromatograms and chromosomal analyses are normal. EEG recordings show slight, but identical, abnormalities.

Both parents are of dull mentality, and the younger brother is also mentally backward.

MZ twin pair N. 2. Both suffer from gastric dilatation, megacolon, and small umbilical hernia (Fairweather and O'Sullivan, 1947). They developed, simultaneously, oculogyric crises on small doses of Dartalan (thiopropazate) (Heaton-Ward et al, 1959). Urine chromatograms are normal; chromosomal studies revealed female karyotype. EEG tracings are similar but not very abnormal.

There is a history of twinning among cousins of one of the parents, but there are no other mental or physical abnormalities.

MZ twin pair N. 3. They were both born with coxa vara and with shorter left leg. They also suffer from epilepsy.

There is no evidence of mental or physical disorder in the family tree; one of the patients' cousins has normal male twins.

MZ twin pair N. 4. Both phenylketonuric. P., who suffered from cerebral diplegia, died from a lung abscess in 1951; M. is epileptic. Identity was established from the de-

scription of physical features and photographs. Mother had rubella during the second month of pregnancy.

There is no history of mental or physical illness on the maternal or paternal side of the family tree.

MZ twin pair N. 5. Unverricht's myoclonic epilepsy was diagnosed in both cases. L. died in 1961 from bronchopneumonia. Urine chromatograms are normal.

The familial nature of Unverricht's epilepsy is well illustrated here. The twins' mother was married twice; none of the four children of her first marriage was affected, but five out of nine of the children of her second marriage were epileptics. Their father's aunt and two cousins were similarly affected (Fairweather et al, 1949).

MZ twin pair N. 6. The twins have psychopathic personalities. They were discharged from the hospital in 1963. Unfortunately, we have been unable to obtain essential data, because fire destroyed the medical documents in one of the hospitals, and we have been unable, as yet, to trace the parents or relatives of the twins. Identity has so far been confirmed by physical examination and EEG recordings, which are nearly normal and identical.

OTHER TWINS. The concordant ♀♀ twins were both epileptic. Among the rest of the twins, there are eight epileptics, seven spastics, five microcephalics, one mongol, one suffering from Heller's syndrome and one from Prader-Willi syndrome, whose older brother suffers from the same syndrome.

During the 30 years, from two sets of triplets, one female from each set was admitted to the hospital.

From the data collected up to date, the following information emerged from the survey:

- 1) There are no pairs of opposite sex twins in which both are mentally retarded;
- 2) In 33 pairs of twins, 40 patients are mentally retarded. I.Q.'s range from 15 to 73 (mean I.Q. 30.9);
- 3) There are 15 known epileptics among the 33 sets of twins;
- 4) Parental age at the birth of the twins is known in 29 pairs: the mean maternal age is 28.1 years, and the mean paternal age is 32.4 years;
- 5) In 21 pairs of twins, the birth order is known. Of the mentally retarded patients, 9 were first born and 12 were second born;
- 6) From available information, 15 pairs of twins were born an average of 4.6 weeks prematurely;
- 7) W.R. and Kahn was negative in all pairs of twins.

This preliminary report suggests that twinning contributes directly or indirectly to the causation of mental retardation, epilepsy, and other developmental abnormalities, and indicates the need for further twin studies in the fields of both mental retardation and physical abnormalities.

References

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