Short report

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Outcome of de novo balanced translocations ascertained prenatally

There is evidence in published reports for an increased risk of mental retardation or congenital malformation or both in association with de novo, apparently balanced reciprocal translocations.[1 2] However, this is largely based on comparison of incidences of such rearrangements in newborn cytogenetic surveys and mentally handicapped populations. To minimise bias and determine risk accurately, long term follow up of many infants with balanced rearrangements detected by newborn screening is required, but to date only a small amount of data from such surveys is available.[3 4] Further data derive from the outcome at birth of a small number of pregnancies where a de novo rearrangement was detected prenatally.[5] However, in these cases there is little information on subsequent mental development. In an authoritative summary of published reports it was suggested that risk of abnormality is up to 10%[6] and, in one report,[7] as many as 26% of couples chose to terminate their pregnancy after discovery of a reciprocal translocation.

In the west of Scotland it has been our practice to give a more optimistic prognosis; thus we present follow up data on eight consecutive cases of de novo, apparently balanced reciprocal translocations ascertained prenatally in a series of over 15 000 amniocenteses performed between 1972 and 1989.

Translocation breakpoints, indications for amniocentesis, and pregnancy outcome are presented in table 1. In each case the translocation was observed in all cells examined from at least two separate amniotic fluid cell cultures, and in three cases the karyotype was confirmed by examining a cord blood sample taken at delivery. The translocation was assumed to be de novo in each case because the parents were cytogenetically normal. No attempt was made to test paternity. The probands, ranging in age from 16 months to 10 years, underwent physical examination and developmental assessment. Three children of school age were performing satisfactorily in a class appropriate to their age.

With the exception of case 8 all probands were clinically normal. Case 8 was terminated at 18 weeks' gestation after

TABLE 1 *Proband data for the west of Scotland.*

Proband	*Age at examination (y)*	*Translocation breakpoints*	*Indication for amniocentesis*	*Outcome*
1	1·3	t(2;14)(2p11.2;14q11.2)	Maternal age	Clinically normal
2	1·8	t(2;9)(2p12;9p13)	Maternal age	Clinically normal
3	2·5	t(4;18)(4q25;18p11.2)	Raised MS–AFP	Clinically normal
4	3·1	t(4;16)(4q16;16p11.2)	Maternal age	Clinically normal
5	4·9	t(1;11)(1p34;11q13)	Maternal age	Clinically normal
6	6·8	t(11;15)(11q21;15q24)	Maternal age	Clinically normal
7	10·3	t(8;15)(8p13;15q12)	Previous NTD	Clinically normal
8	Termination	t(8;9)(8q1;9p1)	Raised MS–AFP	Anencephaly

TABLE 2 *Summary of cases of de novo balanced reciprocal rearrangements with known outcome (after Warburton, cited in reference 6).*

	Total cases	*Normal*	*Abnormal*	*Abnormalities detected*
Prenatally detected cases	60	56	4	Bilateral renal agenesis Fetal dysmorphism Not specified Anencephaly
Neonatal cytogenetic surveys	13	10	3	Short stature, hypospadias, dysmorphism, speech delay Remedial teaching at normal school* Myoclonic epilepsy, died aged 3·9 years†
Combined total	73	66	7	

*Pregnancy complicated by pre-eclamptic toxaemia.
†Pregnancy complicated by antepartum haemorrhage.

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anencephaly was diagnosed. The balanced translocation was subsequently detected in cultured amniotic fluid cells and fetal tissues.

If our own data are added to those already published (table 2), then the crude risk of any abnormality after prenatal or newborn detection of a balanced, de novo, reciprocal translocation approaches 10%, but very few infants have been followed past the first year of life. Comparable data from other centres are thus required for improved genetic counselling in this area.

D J MACGREGOR, S IMRIE, AND J L TOLMIE
Duncan Guthrie Institute of Medical Genetics, Yorkhill Hospitals, Yorkhill, Glasgow G3 8SJ.

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Correspondence to Dr John Tolmie, Duncan Guthrie Institute of Medical Genetics, Yorkhill Hospitals, Yorkhill, Glasgow G3 8SJ.