A study on mental retardation in Malaysian Children

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A comprehensive survey on mental retardation among Malaysian children has not been carried out.

However as from January, 1974 onwards, a "test" survey was carried out; I call this a "test" survey in that the main objective of this survey was to obtain confirmation for the need of a more detailed and comprehensive survey. The findings of the Statistical and Clinical Survey of Mental Subnormality in Singapore Children carried out by Professor Freda M. Paul of the Paediatric Department, University of Singapore clearly indicate the need for a more comprehensive survey in Malaysia as well(1).

I now present an analysis of 120 Malaysian cases studied from January 1974 onwards. The majority of the cases studied are from the three Schools for Retarded Children in Selangor. They formed the most easily available source, and the Selangor Association for Retarded Children was keen to have all the children reexamined and reassessed, so that some of them could be recommended for the Special Training Centre set up in Johore Bahru.

In this study the following aspects were studied:

1. The possible aetiological causes with special reference to chromosomal abnormalities. A chromosomal analysis was done on practically every case that was studied. It was a random study, and no special group of retarded children was selected. This aspect of the studies was done in collaboration with Dr. H.S. Yong of the School of Biological Sciences, University of Malaya. Successful analysis was obtained in 93 cases.
2. Psychological Testing was done by Dr. Grace Lim, a Psychologist from Indonesia who fortunately happened to be in Kuala Lumpur, and readily voluntered her services to us. 41 cases were tested. The Wechster Intelligence Scale for Children, Goodenough-Harris Drawing Test, and the Ravens Standard Progressive

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Matrices for children were used in most cases.

3. Anthropometric studies were done on 60 children by Mr. J.B. Lim of the Institute for Medical Research with a view to compare the results obtained with that of a group of normal children.

The Ethnic distribution and sex of the cases studied are now shown in Table I.

Age Distribution was as follows:–

0 – 2 years – 16 cases
2 – 5 years – 6 cases
5 – 12 years – 48 cases
Above 12 years – 46 cases.

Breakdown of Cases Studied

Table I

Ethnic Group	
Malay	36
Chinese	49
Indian	32
Eurasian	3

Sex	M	F
Malay	21	15
Chinese	33	16
Indians	17	14
Others	1	3

Sources of Referral

As mentioned before, the majority of cases studied were from the schools for retarded children. In addition to this, 17 cases were studied from the Neurology Unit of the General Hospital, Kuala Lumpur. 4 abnormal looking neonates were studied from the Maternity Unit of the General Hospital, Kuala Lumpur and 2 babies who were clinically diagnosed as mongoloids were studied from the Paediatric Unit of Seremban General Hospital. 7 abnormal children were studied from the Padang Lebar Clinic of Ulu Jempol in Kuala Pilah District where a Rural Health Research Programme is currently being carried out.

Table II shows the Sources of Referral.

Table II

Sources of Referral	Total No.
1. Paediatric Clinic	1
2. Neurology Ward G.H. Kuala Lumpur	17
3. Maternity Hospital Kuala Lumpur	4
4. School for Retarded Children Jln. Ipoh	33
5. School for Retarded Children Jln. Brickfields	21
6. School for Retarded Children – Sentul	26
7. Padang Lebar Clinic, Ulu Jempol	7
8. Direct	8
9. General Hospital, Seremban	2
10. Municipal Clinic, Brickfields	1
Grand Total:	120

Table III shows the Aetiological Cases.

1. Chromosomal abnormalities – 29
2. Prenatal and natal causes – 20
   (a) Low birth weight – 10
   (b) Maternal Disease – 2
   (c) Neonatal Jaundice – 8 – (Rh incompatability in 2 siblings)
3. Brain Injury and Trauma – 4
4. Metabolic and Endocrine causes – 1 (Hypothyroidism)
5. Epilepsy and related conditions – 22
6. Familial tendency – 20
   Females only affected – 11
   (Twins – 1 pair)
   Males only – 8
   (Twins 1 pair)
   Males and Female affected – 1
7. Meningeal Infection – 2
8. Autism – 3
9. Multiple aetiology – 8
   (a) Osteogenesis Imperfecta – 1

(b) Muscular Dystrophy — 3
(c) Others — 4

10. Causes Unknown — 11
(No cases could be found at all).

As we have only studied a few cases at this time, no attempt had been made to establish the incidence and prevalence among the three ethnic groups in Malaysia.

Analysing the findings broadly, we found:

1. Definite chromosomal abnormalities in 29 cases about which I shall refer to again.

2. Prenatal and natal causes — 20

Out of these 20 cases there was a definite history of low birth, weight and prematurity in 10 cases. History of severe maternal disease in 2 cases. One had suffered from Pre-Eclamptic Toxaemia, and the other was being treated for Hypertension. There was definite history of prolonged Neonatal Jaundice in 8 cases. In two Indian siblings, the jaundice was established definitely due to Rh Incompatability. No definite cause was established in the other cases. This is a preventable cause of mental retardation and the importance of early recognition of Neonatal Jaundice and the awareness of the complications it can cause, and the proper management must be stressed, especially in the rural areas.

Definite history of trauma and brain injury was obtained in 3 cases. In one case there was Congenital Encephalocoel which had been surgically operated on at the Neuro Unit.

3. Endocrine Causes — 1 case of Hypothyriodism was detected and replacement therapy started.

4. Epilepsy and Related conditions

In 4 cases there was evidence of definite Epilepti form attacks, and they were taking regular therapy.

There were 3 cases of Cerebral Palsy. Associated gross neurological abnormalities were seen in 4 cases. In the other cases there was a history of convulsions, mainly febrile convulsions at some time or other. No regular medication was being taken. We have not done any detailed investigations to establish the definite cause in these cases.

5. Definite Familial tendency

This was seen in 20 cases. There were no other associated causes. In 11 cases studied, only the female siblings were affected. There was one instance where both twin sisters were affected. There was also one instance where both twin brothers were retarded. These cases have also to be studied in more detail.

6. Infantile Autism was entertained as the most likely diagnosis in 3 cases.

Additional findings are:

1. Associated Gross Speech Defects were obtained in 33 cases.

2. Consanguinity of Marriage was found only in three families. Two Indians and one Malay.

Cases studied in Rural Area of Padang Lebar. From the 7 cases studied, 2 were established as due to Classical Trisomy G.

1 case — was of severe Cerebral Palsy with mental retardation and the other was of Osteogenesis Imperecto. The great crippling effect of the disease may have slowed down the proper mental development; however the boy was able to attend school for normal children. 3 siblings were studied with muscular dystrophy.

No formal psychological testing was done to establish if there was real mental retardation or not in these cases.

Chromosomal abnormalities. Shown in slides IV, V, VI.

Chromosomal abnormalities studied

The commonest abnormality obtained was classified Trisomy "G" — 25 cases. There was one case of Iso-chromosome "Y" and one case of D–G. Translocation Syndrome. This was diagnosed in a one day old baby referred from the maternity hospital. The mother was 34 yearsone at the time of delivery of the infant. There was an elder sister who has also the typical clinical features of mongolism. Unfortunately, the chromosomal analysis of the whole family has not been successfully completed as yet.

From among the cases established as Mongolism, it was found that 2 mothers were below the age of 20 at the time of birth of the child. 13 mothers were between the ages of 25 — 35 years and 12 mothers were between the ages 35 — 45. In 13 cases studied the youngest and last sibling were affected. In 14 cases, it was found that the mother did have normal siblings after the birth of a mongo-

loid child. I would like to add that in collaboration with Dr. Olga Petre-Quadens from Brussels we are planning to have a clinical trial with 5-Hydroxy-tryptophane on Mongol children who have been detected early in life to see if their mental development will improve with this drug.

Two other interesting findings were obtained from chromosomal analysis done on special referred cases. One was a 16 year old patient referred from the Surgical Unit. The patient was brought up as a girl by her parents and dressed as a girl. However the behaviour pattern was that of a boy. There was no breast development; Genitalia were abnormal with the presence of hypospadias bifid scrotum with bilateral testicles of normal consistency. The buccal smear was found to be negative for Sex Chromatin. Chromosomal analysis showed an Iso-chromosome or Pericentric Inversion of the "Y" chromosome. The effect of Iso-chromosome "Y" can result in (a) Normal Fertile Male (b) Turner's Syndrome. (c) Possibly pure gonadal, dysgenesis as in this case.

On operation both testicles were found to be actively functioning, and the sex established as Male.

The other case was referred from Alor Star. She was a case of Primary Amenorrheoa. She was of short stature – 4ft 6". (Her younger sisters were taller than her). There was no breast development and webbing of the neck was present. Buccal smear – most of the cells were chromatin negative. Chromosome analysis showed two different stem lines – one showed the presence of 45 chromosome with XO pattern the other stem line showed 47 chromosomes with XXX pattern. Turner's Syndrome or a variant of Turner's Syndrome or Turner Mosaic was diagnosed.

Psychological Testing was carried out on 41 cases. Out of these, 11 cases were or proven classical Trisomy "G" Mongolism. Though all the cases were of similar chromosomal abnormality, the majority had an IQ ranging from 40 – 70. However one girl who had been attending the special school for 7 years, showed a much higher IQ level of 70 – 90 at age of 18 years. She could understand 3 languages, read and write simple sentences, enjoy watching television and was a responsible leader in school She had been recommended for special training in Johore. 3 cases were found to be withdrawn and autistic. 1 child showed marked psychological regression probably as a result of parental neglect during the birth of the second sibling. Very poor speech development in 13 cases with associated hearing defect made assessment difficult. However, the marked imbalance between verbal skills (due to lack of understanding) and performance skills shows the need for proper speech training and investigation into associated hearing defects. Observation into the parental attitude towards these children, showed that only 2 were really aggressive and ill treated children. The majority accepted them and three were overprotective and expected too much from the children. Psychological assessment and grading also helped the teachers in the special schools for grouping the children.

Anthropometric Assessment of Growth and Development

Anthropometric measurements were taken on 60 cases with mental retardation drawn mainly (86.6%) from 3 schools for Mentally Retarded Children in Kuala Lumpur, 10.0% from the Neurological & Paediatric Units of Kuala Lumpur and Seremban Hospitals, with the remaining 3.4% from children seeking admission into schools for the mentally retarded. Their ages range between 3 days to 21 years, and belong to both sexes.

Tricep measurements (3) were made using the Harpenden Skinfold Calipers (2), while Mid-Arm, Head and Chest (4,5), Circumferences were made with a non-elastic tape, while height and weight measurements carried out using height and weight scales.

Height curves in relation to their ages and weights were studied, and compared with normal curves (Havard Standards) for normal well-fed children (6). Both findings fell below normal. These seem to indicate that the children under study exhibit some form of structural abnormalities with a tendency to be short-statured and over-weight. We thought perhaps obesity could contribute towards these findings, but skinfold triceps and sub-scapular measurements seem to suggest that perhaps the excessive weights of these groups could be due to their thicker bone and muscular development (7). This is supported by measurements of their mid-arm-circumference.

Anthropometric measurements of their brain weight through head-circumference in relation to body weight indicated that 98% of the groups had head circumferences falling below the normal standard for children with normal brain and intellectual development. Chest-head ratios also suggest

low brain weight and poor mental growth.

Conclusion:

This is a small survey of 120 cases of Mentally Retarded Children. From the analysis it was found:-

1. Neonatal Jaundice and Kernicterus is a preventable cause of mental retardation. It still occurs. The early recognition, dangers and proper management have to be stressed to medical and paramedical staff, especially in the rural areas.
2. Associated Gross Speech Defect was seen in 33 cases. Proper facilities for speech training in these children will greatly benefit them.
3. Genetic counselling is recommended for cases having specific chromosomal abnormalities
   (a) particularly in young mothers below 25 years of age with one Mongol child (of Trisomy G type) since there is a 50 fold increase in the random risk of her having another Mongol child (8).
   (b) Mothers having translocation type of Mongol children.
4. Proper psychological testing and psychotherapy can play a very important role in the management of these children.
5. A more detailed and comprehensive study covering the whole of Malaysia should be carried out.

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