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ASSESSMENT OF MENTAL RETARDATION : NEED FOR NEWER APPROACHES*

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SUMMARY

Mental retardation is a complex, multifaceted condition. It is not a simple condition based primarily on intellectual capacities. Assessment of a retarded child should not be limited to intellectual functioning alone. It should give an idea of the individual's strength and weaknesses globally. Unfortunately, in India, assessment of mental retardation is still primarily based on intelligence tests. There is a need to understand the limitations of such an approach.

Intelligence tests, if administered and interpreted in a rigid manner, fail to give vital informations. Administration of any one or two intelligence tests may or may not be very reliable. Frequently, discrepancies in I. Q. scores are observed among different intelligence tests. It is important to interpret this variability in pattern of success and failure. The pattern analysis of the deficits present and the observation of the child's behaviour may suggest lapses in attention, specific disabilities or physiological handicaps. Such an approach will help in understanding the nature of the problem. It will also help in planning the training programme for the individual child more effectively.

In the current paper we present five cases along with their histories and assessment profiles highlighting the discrepancies observed and importance of the approach mentioned above. Inadequacy of the conventional intelligence tests when used in mentally retarded population vis-a-vis a need to develop newer tests are also discussed.

Mentally retarded children form a heterogenous population. Mental retardation encompasses three main components : organic pathology, psychological impairment, and social handicap. Brain pathology and CNS dysfunction have been found to be an important variable in this group (Tredgold and Soddy, 1963; Masland, 1956; Luria, 1963 and Baumeister and MacLean, 1979). However, despite the general acceptance of multideterminants of mental retardation it is not uncommon to find measured intelligence used as it's sole criterion.

The main arguments in favour of psychometric tests are their feasibility, objectivity, reliability, standardization, and time-effectiveness. Though, they are widely used it is now recognized that I. Q. scores have limited value in relation to diagnosis and prognosis of mental retardation (Gould, 1981; Liepmann, 1981). Some of the obvious limitations of available intelligence tests are their inapplicability in a large proportion of severely retarded children. This is mainly because none of the commonly used intelligence tests have included mentally retarded children in their normative samples. They have been constructed in order to differentiate within the normal intelligence range. They are insensitive to variations at low

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extremes. Hence, if a child's score falls outside the expected range, his I. Q. has to be calculated by extrapolation. This is most unreliable procedure defeating the very purpose of psychometric assessment. The application of such "normative" tests in cases of mental retardation has been questioned (Liepmann, 1981; Gould, 1981; Kay, 1977).

The use of single numerical index to indicate a child's levels of intelligence has also been criticized (Gould, 1981). This has serious disadvantages. It is oversimplification even for normal children. Some mentally retarded children have marked discrepancy among different types of skills. In such cases, an I. Q. based on mean level performance covers up the variability of performance (Kay, 1988). Some children may be severely retarded on a test of language function but may be mildly or moderately retarded on visuo-spatial or self-care skills (Ort, 1981). It is important to know the implicit strength, weaknesses, and patterns of performance of such children. Certain patterns of performance has been associated more with particular type of mental retardation. Inferior visuo-constructive performance in comparison to verbal abilities in Turner's syndrome (Money, 1973), comparatively poor visual-motor integration than simple motor skills and general language skills in William syndrome (MacDonald and Roy, 1988), and right hemisphere dominance for language in Down's syndrome (Hartley, 1983) have been reported. Cossu and Marshall (1986) reported excellent reading and writing skills in two Italian girls against a background of severe mental retardation. These results suggest the importance of neuropsychological assessment in such children. Neuropsychological assessment help in finding out the underlying brain pathology and CNS dysfunction in many of these children. Traditional intelligence tests fail to show such qualitative and quantitative differences in ability levels of not only genetically different types of mental retardation but also within the general population of mentally retarded children (Hooper and Boyd, 1986). The knowledge of differences in performance not only help in finding out the brain-behaviour correlates, but can be used in educational and vocational planning. It is unfortunate that the neuropsychological aspect of mental retardation has not received enough attention despite its importance.

There are various factors which markedly affect the performance on an intelligence test in mentally retarded children. Associated handicaps in hearing, vision, motor skills, language impairment, behavioural disturbances, inadequate motivation, and cultural deprivation may adversely influence the outcome on an intelligence test. If these factors are not taken into consideration, the general level of a child's abilities may either be under- or over-estimated.

The following case reports aim to highlight the difficulties faced and limitation of some of the commonly used intelligence tests in clinical practice.

Case 1

R. K. 5 years old girl, eldest of three sibs was born at full term. It was a normal delivery conducted at home. She presented with complaints of poor comprehension and difficulty in acquiring academic skills. Her milestones were normal. There was no history of fits, head injury, febrile illness, or systemic diseases.

During testing sessions, she was attentive and cooperative. She could grasp simple questions and answer relevantly. She was tested with Seguin Form Board (SFB) (Goel, 1984), Koh's Block Design Test (KBDT), Developmental Screening Test (DST) (Bharath Raj, 1983), and Vineland Social Maturity Scale (VSMS) (Doll, 1965).

On SFB, she had difficulty in putting the blocks in their proper places. She had ran-

dom trial approach and was not able to learn from previous trials. Her mental age on this test was below three years. On KBDT she was unable to make simple designs even after repeated demonstrations, though she was able to match similar colours. On DST her developmental age was between 3-4 years. Her I.Q. was 70. On VSMS her social intelligence was 70 and social age was 3.5 years.

Case 2

MB, an 11 years old boy, third of six surviving sibs, presented with complaints of poor self care (unable to feed, wash and dress himself), hyperactivity, and no verbal speech. He was born at full term, but the labour was prolonged. He was noted to have a big head and had delayed birth cry. His milestones were delayed. At four years age he learnt a single word "Papa" and since then no significant acquisition in expressive speech was noticed. He had no history of fits or head injury. There was family history of mental retardation, fits and psychosis.

He showed interest in the toys and remained interested in it for more than an hour at a time. He was not overactive or destructive. His concentration was fair. He recognized his family members and understood simple instructions. He indicated his needs through noises and nonverbal gestures. Whenever he needed to see an object he brought it near to his left eye. He did not seem to use his right eye.

He was unable to do SFB, instead he played with the blocks. Due to severe language disturbance he was unable to comprehend the commands. Other tests like KBDT were not given. On DST his developmental age was 1½-2 years. His social age on VSMS was 2-3 years.

Case 3

AL a 12 years boy was the youngest of three sibs. He presented with complaints of poor control of his limbs, unclear speech, and inability to read and write. He was born at full term. It was a normal, hospital-conducted delivery. His limbs and spine were deformed at birth. They were bent like a bow and his eyeballs were divergent. He had delayed milestones. He started crawling at the age of six. He used to drag his hindquarters and make queer frog-like leaping movement. He started walking at the age of 9. He wobbled on his bow-legs, his movements were clumsy and he could not execute finer motor acts. He acquired monosyllabic speech by the age of 9 and could use 2-3 word sentences by 11 years of age. His speech was incomprehensible though his relations were able to guess or understand it.

During testing sessions, he was cooperative, attentive, and able to understand simple instructions. He had mild choreoathetotic movements. On KBDT he acquired more number of trials and time span. With enough trials and demonstrations he was able to learn. He was taking more time because of poor eye-hand co-ordination in performing the test. With flexibility in administrative and scoring procedures his score on KBDT suggested an I.Q. of 62. On RCPM, if scored rigidly, his score was 15; but if the second trial responses were taken into consideration his score improved to 24 putting him in grade II. His observations were fairly good though he had difficulty in discriminating similar alternatives. His social age on VSMS was 8.5 years and social intelligence 70.

Case 4

C a 5 years old boy was the youngest of three sibs. He was unable to speak and thought to be deaf and dumb. He was born before term in a hospital. His milestones were delayed and his head at the time of birth was noted to be big. He acquired monosyllabic speech at the age of 3½ yrs. He retained it for few months and for the last one year a

fall in his verbal milestone had been noticed.

During testing sessions he was cooperative, attentive and understood simple instructions. He communicated effectively with non-verbal gestures. On SFB his mental age was 3 years. He required initial demonstration to explain the nature of the task on this test. KBDT was not administered because he was unable to match similar blocks. Because of poor speech the findings on DST were difficult to interpret. On the one hand his speech development was not even that of a child of one year while on the other hand he was able to perform tasks of a three year old child. His social age on VSMS was 3.2 years and social intelligence 64.

Case 5

RR a 5½ years old boy, the only child of his parents came with complaints of hyperactivity, inattentiveness, inability to learn any task, and behavioural disturbances like spitting in inappropriate places. He was born at fullterm, normal delivery in a hospital. He had mildly delayed motor milestones. His speech comprised of simple sentences of 2-3 words. It was halting in nature. He had history of generalized tonic-clonic epilepsy since the age of 10 months. Its frequency was 1-2 per month with occasional attacks in cluster or status. At the time of assessment he was on antiepileptic drugs and his fits were controlled.

During the testing sessions he was cooperative but often restless, inattentive, and distractible. He was able to comprehend the instructions but unable to retain it for long time. On SFB the pattern of time taken across three trials was very inconsistent. He took less time on the second trial but on the third trial it was longer than even the first one. The time taken was longer than the standard norm. Thus it was not possible to interpret the findings on SFB reliably. For the same reasons other performance tests were not administered. His developmental age, on DST was 3 years and social age on VSMS was 3.3 years with social intelligence of 60.

RESULTS

Table shows the results obtained on various tests in five cases. It indicates problems encountered while administering these

TABLE : *Showing test findings in five cases*

Tests used	Cases				
	1	2	3	4	5
SFB	M.A.<3 yrs.	CNBT	—	M.A.=3 yrs.	M.A.<3 yrs. due to inattentiveness.
KBDT	CNBT	CNBT	I.Q. 64 with change in standard administrative/ scoring procedure.	CNBT	CNBT
DST	M.A.=3.4 yrs.	M.A.=2 yrs.	—	M.A.=3 yrs. Language<1 yr.	M.A.=3 yrs.
RCPM	—	—	Grade II with change in scoring procedure.	—	—
VSMS (S.A.)	3.5 yrs.	2.3 yrs.	8.5 yrs.	3.2 yrs.	3.3 yrs.

M.A.=Mental Age, S.A.=Social Age, CNBT=Could not be tested.

tests in mentally retarded children. SFB was not able to give reliable estimate of child's intelligence in 3 out of 4 cases. KBDT could not be administered in 4 out of 5 cases. Mental age and visuo-spatial integration required for this test were lacking in these children. Even in one case where it was administered changes in standard administrative and scoring procedure was needed. DST was more or less able to give rough estimate of child's developmental age. However, the applicability of the test beyond screening purpose is questionable. It has its limitation in cases where there is uneven pattern of language and other developmental skills. RCPM also could not be administered except on one child. In this case also a flexible approach was needed. VSMS scores gave a fair indication of child's social age in all the five cases. Descrepancy among test scores was found in most of the children suggesting need for further analysis.

DISCUSSION

The cases presented in this study represent various associated handicaps and limitations of traditional intelligence tests. The case 1 had gross visuo-spatial disturbances, case 2 was "difficult to test" child, case 3 had gross motor handicap, case 4 had severe language problem while case 5 had epilepsy, hyperkinesia, and behaviour disturbances along with mental retardation. These cases are fair representatives of problems encountered in mentally retarded population. They are often labelled "untestable". When a rigid approach is applied in test administration and scoring their intelligence is often under-estimated. Thus the onus of test compatibility is shifted from the test itself onto the patient (Kay, 1988). None of the tests used except VSMS gave a fair account of a child's abilities. The intelligence tests standardized on normal population have limited applicability in clinical groups. It is thus necessary to compile and standardize test batteries specifically for mentally retarded children. In this direction some work has already been done. Bondy et al. (1971) have standardized a battery in Germany. Schopler and Reichler (1979) and Demeyer (1978) have done similar work in USA. However, Bondy et al.'s battery also could not assess intelligence on 20-25% of mentally retarded children population. Glezerman et al. (1987) and Fletcher and Taylor (1984) suggested the possibility of using neuropsychological approach in the assessment of mental retardation. Matthews (1974) and Benton (1970) advocated similar views. Matthews (1974) collected some normative data for retarded children aged 9-14 on Halsted-Reitan neuropsychological test battery. Recently, Luria-Nebraska Neuropsychological Battery, Children's revision has been developed (Plaisted et al., 1983). It is based on Luria's theoretical constructs. Standardization and application of neuropsychological batteries on mentally retarded children may help in bridging the gap between the neuroanatomical and neuropsychological aspects of the retardates and their behavioural correlates (Gordon, 1977).

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