Children with Learning Disabilities in the Paediatric Clinic, Hospital Tuanku Ja'afar Seremban: An Overview

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SUMMARY

The aim of the study was to document the prevalence of learning disability among the children attending the Paediatric Clinic in Hospital Tuanku Ja'afar Seremban. The demographic distribution of these patients; the age of detection of the problem; the associated medical conditions and types of intervention received by these patients were documented. Patients who were between the ages of five to twelve years were included in the study. Learning disability was divided into three categories: speech and articulation problems, academic skills disorder and other categories which included developmental delay. Children with cerebral palsy were excluded from the study. Out of 1320 patients screened, 355 were found to have learning disorders. Majority were Malays, with the male to female ratio of 1.9:1. Most of the patients stayed in Seremban. The learning problem was most commonly detected at the age of 4 years and below. The commonest type of learning disorder was developmental delay, followed by academic skills disorder, speech and academic skills problems and speech disorders. Problems that were detected early were speech problems and developmental delay. Majority of the children had associated medical conditions. Most of the patients received some form of intervention but 11.3% did not attend any intervention program at all. A strategy should be formulated and implemented to help this group of children.

KEY WORDS:
Children, Learning disability

INTRODUCTION

The Education Act of 1996 in Malaysia defined children with special needs as children with visual, hearing and learning disabilities. The Ministry of Education has further defined children with learning disabilities as children with Down Syndrome, children with autism, children with cognitive disabilities, children with behavioural and emotional difficulties, children with health problems and children with speech and language difficulties[1].

For the purpose of this study, learning disability was divided into three broad categories according to the children's specific concerns[2,3]:

- Speech and language disorders (includes difficulty with articulation, understanding certain aspects of speech)
- Academic skill disorders (e.g. dyslexia, writing difficulties related to hand movement, vocabulary or memory and mathematics disorders); and
- Other disorders (including a set of diagnoses not meeting the criteria of the other categories.

In 2006, there were 197 519 persons with disabilities registered with the Malaysian Social Welfare Department and persons with learning disabilities were the highest number which was 76 619 in the population of 27.3 million[4].

Learning disability can be a life-long condition that may affect many aspects of life including education, employment, family life and daily routines. However, with proper support and guidance, persons with learning disabilities can learn and attain success.

As paediatricians, we are seeing more and more patients with learning disability and there is a need to have local statistics to organize multidisciplinary resources for children especially in the younger age group. In the Paediatric Clinic of Hospital Tuanku Ja'afar Seremban, the percentage of new cases with learning disability was 3.5% in 2006 with another 12.5% of new cases having medical problems associated with learning disability[5].

Therefore, the objectives of this study were :

1. To determine the prevalence of children with learning disabilities in the Paediatric Clinic, Tuanku Ja'afar Seremban Hospital.
2. To document the demographic data of patients with learning disability.
3. To determine the age of detection for the learning problem.
4. To determine associated medical problems of the children with learning disability.
5. To determine the types of intervention received by the patients.

MATERIALS AND METHODS

This study was a cross-sectional study done between the periods of 1.1.2008 to 31.12.2008. Patients who were born in 1996 to 2003 (ages between 5 to 12 years in 2008) attending the Paediatric Clinic were included in this study. As part of the follow-up, the children and their caregivers were asked regarding developmental milestones and school performance. The diagnosis was made by the attending paediatricians reviewing the patients based on developmental milestones and clinical experience. Learning disability is defined as any of the children who fit into the categories stated above. Children with cerebral palsy were excluded from the study. All the patients' records were tagged with an orange sticker and the records were reviewed by the researchers. Children who fulfilled the criteria of learning disability were selected and a checklist was filled up for each of the selected child.

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Data was collected using a checklist which included demographic data such as name, date of birth, ethnicity, gender, district of stay; the age of detection (in complete years) of the learning disability; type of learning disability- speech and language, academic skills or others; types of intervention received such as occupational therapy, special education, any referral to clinical psychologist or learning disability clinics and underlying medical problems such as syndromes, Attention Deficit Hyperactive Disorders, autism, hypothyroid and other medical problems.

Data was then entered and analyzed using the SPSS 11.0 programme.

RESULTS

During the study period, a total of 1320 patients who were born between 1996 and 2003 (ages between 5 to 12 years in 2008) attended the Paediatric Clinic. From these patients, 355 (26.9%) were found to have learning disabilities. There were 45 newly diagnosed patients (12.7%) and 315 follow-up patients (87.3%).

There were a total of 559 new cases for the year 2008, bringing the percentage of new cases for learning disability to 8.1%.

Demographic data

Characteristics of patients with learning disabilities are summarized in Table I. There were more Malay patients (60.5%) with learning disability compared to the Chinese (19.7%), Indians (19.2%) and other (0.6%) races. Comparatively, in the year 2008, there were total of 7574 (61.8%) attendances for Malay patients, 2435 (19.9%) attendances for Indian patients, 2065 (16.9%) attendances for Chinese patients and 185 (1.4%) attendance for other ethnicities in the Paediatric Clinic[5]. Therefore, generally, more Malay patients attended the Paediatric Clinic compared to Chinese and Indians.

There were more males compared to females, 65.6% of males to 34.4% of females. Therefore, male: female ratio was 1.9:1.

The majority of patients were from the district of Seremban (67.9%), followed by the district of Port Dickson (12.4%), Rembau (5.6%), Tampin and Jelebu (1.7% respectively) and 0.8% from Jempol with 0.3% from Kuala Pilah. The smaller percentages from the districts of Jempol and Kuala Pilah were probably due to under representation as these districts were also served by paediatricians in Kuala Pilah Hospital. Seremban Hospital also covered patients from bordering states, namely Selangor (9.0%) and other states such as Johor and Malacca (0.6%).

Learning problems were detected at the age of four and below for 50.4% of the patients. There were 22.0% of patients detected to have learning problems once they have started their primary schooling at the age of 7 until 9 years (Standard 1 to 3) and another 18.3% were detected in preschool (ages 5 and 6 years). However, 6.2% of these children were found to have learning disability at a later age of 10-12 years.

Types of Learning Disability

The most common presentation of learning disability is global developmental delay involving 40.8% of the patients. There were 28.4% of the patients who had problems in their academic performance, 16.0% had both academic and speech and language problems with 13.8% presenting with speech and language problems. It was noted that 0.3% of the patients were blind, deaf and had fine motor dysfunction respectively. Table II shows that the majority of children with global developmental delay and speech and articulation problems were identified early between the ages of 0-4 years for learning disability. Patients who had a combination of speech and articulation problems with academic skill problems were also detected earlier between 0-4 years of age. Academic skills problems were more commonly detected in the lower primary age (7-9 years).

Associated Medical Conditions

Out of the 355 patients with learning disability; 265 of them (74.7%) had associated medical conditions. From this number, the most common was syndromes (27.6%), mainly Down syndrome. The next most common medical problem was Attention Deficit Hyperactive Disorder (ADHD) (12.8%) followed by epilepsy (11.3%). Other common causes included autism (7.2%); anomalies and infections of the central nervous system- 7.2% respectively; prematurity (5.7%); dysmorphism (3.0%); autism with hyperactivity (2.3%) and severe neonatal jaundice occurred in another 2.3% of patients. Less common causes included hypothyroidism 1.5%; perinatal asphyxia; hypoglycaemia and metabolic causes (1.1% respectively). There were 7.9% of the patients who had miscellaneous medical problems such as cleft lip and palate, congenital heart disease and sensorineural hearing loss (Table III).

44.2% of patients with associated medical conditions were detected to have learning disability at an earlier age; between 0 to 4 years old.

Types of Intervention

There were 315 patients (88.7%) receiving intervention compared to 40 (11.3%) who were not receiving any form of intervention at all. Out of the 315 patients receiving intervention, 70.1% received single form of intervention with 18.6% receiving multiple types of intervention.

In Table IV, the majority of patients (49.3%) have registered for Special Education. There were 62 patients (17.5%) undergoing speech therapy and 46 patients (12.9%) had attended occupational therapy. There were 23 children (6.5%) receiving training in the community rehabilitation centres. Only 9 patients (2.5%) were sent for psychological assessment. Private tuition was another option for 10 of the patients (2.8%).

DISCUSSION

Learning disability is an emerging problem mainly because of increasing awareness and the realization that there are more interventions available. Learning disability may be subtle and often present to the medical practitioner with vague complaints of inability to learn or poor school performance.

Table I: Characteristics of children with learning disabilities (N=355)

General Characteristics		Number of children	%
Age of assessment (in complete years)	5-6	98	27.6
	7-9	142	39.7
	10-12	116	32.
Ethnicity	Malay	215	60.5
	Chinese	70	19.7
	Indian	68	19.2
	Others	2	0.6
Gender	Male	233	65.6
	Female	122	34.4
Districts	Seremban	241	67.9
	Port Dickson	44	12.4
	Rembau	20	5.6
	Tampin	6	1.7
	Jelebu	6	1.7
	Jempol	3	0.8
	Kuala Pilah	1	0.3
	Selangor	32	9.0
	Others	2	0.6

Table II: Comparing types of learning disability to age of detection

Types of learning	Unknown		0-4 yrs		5-6 yrs		7-9 yrs		10-12 yrs		Total	
disabilityn	%	n	%	n	%	n	%	n	%	n	%	%
Speech			36	10.1	11	3.1	1	0.3	1	0.3	49	13.8
Academic			8	2.2	26	7.3	54	15.2	13	3.7	101	28.4
Speech & Academic	1	0.3	23	6.5	15	4.2	15	4.2	3	0.9	57	16.1
Global developmental delay			112	31.5	11	3.1	17	4.8	5	1.4	145	40.8
Deaf					1	0.3					1	0.3
Blind							1	0.3			1	0.3
Fine motor problems					1	0.3					1	0.3
TOTAL	1	0.3	179	50.3	65	18.3	88	24.8	22	6.3	355	100.0

Table III: Patients with Underlying Medical Conditions

Medical Conditions	Number of children	%
Syndromic:	73	27.6
Downs	47	
Others	26	
ADHD	34	12.8
Epilepsy	30	11.3
Autism	21	7.9
CNS Abnormalities	19	7.2
CNS Infection	19	7.2
Prematurity	16	6.0
Dysmorphism	8	3.0
Autism with hyperactivity	6	2.3
Severe NNJ	5	2.0
Hypothyroid	4	1.5
Perinatal asphyxia	3	1.1
Hypoglycaemia	3	1.1
Metabolic syndromes	3	1.1
Miscellaneous Causes	21	7.9
Total	265	100.0

Table VI: Types of Intervention Received

*some patients received more than 1 intervention

Types of intervention	Number of children	%
Special Education	172	49.3
Occupational Therapy	46	12.9
Community Rehab. Centre	23	6.5
Clinical Psychologist	9	2.5
Assessment / Follow-up		
Other: Speech	62	17.5
Psychiatry	14	3.9
Kiwanis	11	3.1
Private tuition	10	2.8
ENT	7	2.0
Physiotherapy	2	0.6
Ophthalmology	2	0.6
Neurological services	2	0.6
Rehab	1	0.3
NASOM	1	0.3

The incidence of learning disabilities has been reported by the Mayo Clinic to be 5.3% to 11.8% depending on the definition used to establish it [6] . In another study done in United States of America, approximately 5% of all public students were identified as having learning disability [7]. In Singapore, approximately 5% of primary one students were likely to suffer from dyslexia[3]. The World Health Organisation has estimated the prevalence of learning disability in industrialized countries to be around 3% [8].

Historically, learning disability especially reading disability has been documented since 1917 [9]. Since then, studies have been done to ascertain risk factors of children with learning disability. It has been found that children with learning disability were usually male; have poorer general health; may have been exposed to a greater variety of adverse life events such as abuse, serious accidents, bereavement and domestic violence; brought up by single parent; live in poverty; experience familial disharmony; have a mother in poorer health; have a mother with mental health needs; live in a family with lower educational achievements and have fewer friends [10]. Our study also found that the majority of the children with learning disability were boys with the ratio of 1.9:1. Therefore, during follow-up in the clinic, it would be best to screen these patients for other risk factors such as school bullying, abuse, financial status and family support.

Three quarter of the patients in this study had associated medical conditions. It was interesting to note that 2% of the patients with associated medical conditions had history of severe neonatal jaundice. The causes were mainly early onset haemolytic jaundice in which two patients received multiple exchange transfusions. Another diagnosis that warrants attention is hypothyroidism which accounted for 1.5% of the patients. The patients were diagnosed before the start of the congenital hypothyroid screening programme in the state.

There were a number of limitations to this study. Firstly, the diagnosis of learning disability and the associated medical problems were made based on clinical presentation and not using objective measures. Secondly, the data was collected by reviewing the medical records only. Thirdly, this study was confined to patients seen in the paediatric clinic of Hospital Tuanku Jaafar only and did not include patients seen in the psychiatry clinic, health facilities and private clinics. Even then, the percentage of children with learning disabilities seen was as high as 26.9% of all patients in the age group 5 to 12 years seen in the clinic. This is also reflected by the numbers of children receiving special education in the state. In 2009, there were already 1034 students in 165 primary schools and 755 students in 111 secondary school receiving special education in Negeri Sembilan[11].

The findings of this study had led to changes in the care of these children in the clinic. A database of facilities for management of children with learning disabilities both in the government and private sectors in the state and neighbouring states was developed and this was helpful to the parents of the children.

A more objective assessment of these children has been introduced to arrive to an accurate and comprehensive diagnosis of the learning disability. Specific screening and diagnostic tools such as Denver Development Screening Tool, Schedule of Growing Skill II, DSM IV criteria for autism and Conner Ratings for Attention Deficit Hyperactive Disorder are currently used.

In view of the need for better expertise in the management of these children, one of the authors has received training in developmental paediatrics in the Child Development Centre, Universiti Kebangsaan Malaysia Medical Centre and now trains other health personnel in the assessment of these children in the Department and the State.

The management for these children is multi-disciplinary and there is improved communication and referral system among the units to ensure these children would receive the interventions that are needed.

CONCLUSION

This study confirmed that there are a large number of children having learning disabilities. Therefore, there is the need of training more doctors and health personnel in the detection and management of these children. Since the management of learning disabilities involves multi-disciplines, resources must also be developed concurrently to ensure these children would receive the proper care to achieve the best of their abilities.

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