Comparison of Problematic Behavior According to the Ryouiku Techou Standard

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Abstract. [Purpose] We compared problematic behaviors of children according to the severity of their mental retardation (MR) of intellect as categorized by the Ryouiku Techou in this study, to investigate the influence of MR of intellect on children’s problematic behaviors. [Subjects] The subjects were 86 mentally retarded children undergoing physical therapy at hospitals and other facilities. [Methods] The examiners were 13 physical therapists and 8 occupational therapists who worked at the hospital and knew the children well. The examiners individually assessed the subjects using the Japanese version of the Aberrant Behavior Checklist. The subjects were divided into two groups (A and non-A) according to the Ryouiku Techou standard. [Results] No significant differences were observed between the groups except in the items of stereotypy and lethargy. [Conclusion] Problematic behaviors other than stereotypy and lethargy were not influenced by the Ryouiku Techou standard.

Key words: The Japanese version of the Aberrant Behavior Checklist, Ryouiku Techou, Problematic behavior

INTRODUCTION

Tada reported that 55% of the services provided by physical therapists at special needs education schools were for physically handicapped children, and included individual counseling and lectures concerning physical disabilities for such children. The services of physical therapists for mentally retarded children, however, also accounted for a high percentage (30.4%), and include individual counseling for mentally retarded children and lectures concerning mental retardation (MR).

Tada’s report suggests that physical therapists are often involved in the management of mentally retarded children. We assessed 26 mentally retarded children undergoing pediatric physical therapy at one of three facilities, including a child daycare facility. Examiners were a physical therapist and other medical practitioners working at the facilities. Assessment was made using the Japanese version of the Aberrant Behavior Checklist (ABC-J). Out of 26 children, irritability was observed in 23, lethargy in 23, stereotypy in 13, hyperactivity in 23, and inappropriate speech in 12. Pediatric physical therapists must increase their understanding of MR, and physical therapy approaches must consider MR. Development tests commonly used to measure mental retardation of handicapped children do not reveal problematic behaviors that may interfere with physical therapy.

We compared problematic behaviors according to the severity of MR in intellectual children as categorized by the Ryouiku Techou. The purpose of this study was to investigate the influence of MR of the intellect on children’s problematic behaviors.

SUBJECTS AND METHODS

The subjects were 86 mentally retarded children undergoing physical therapy at hospitals and other facilities (56 boys and 30 girls; age 16 months to approximately 20 years; average age 8.5 ± 4.7 years) (Table 1). Subjects’ diagnoses included cerebral palsy (CP) and psychomotor retardation among others. The examiners were 13 physical therapists and 8 occupational therapists who worked at the hospital and knew the children well (Table 2). The examiners individually assessed all subjects using the ABC-J. The subjects were divided into two groups (A and non-A) according to the Ryouiku Techou standard. Ryouiku Techou is distributed available to intellectually disabled persons by the Japanese Government and is used in the assessment of their intellectual disability. Individuals are classified into one of the three stages (A, B1, B2) representing serious, moderate, and slight disability, respectively, based on their intellectual disability. The study objectives, significance, methods, and privacy protection were explained to the caregivers of the subjects in writing, and each participant provided their informed written consent. Wilcoxon’s signed rank sum test was applied to the ABC-J scores of both groups for irritability, lethargy, stereotypy, hyperactivity, and inappropriate speech. Statistical analyses were conducted using R 2.8.1 software. The ABC is a questionnaire developed by Aman et al. to assess problematic behaviors in mentally handicapped persons. It has been used in several studies, including those on syndrome phenotype and pharmacotherapy ef-
Table 1. Subjects

| Case | Diagnosis                                | Age  | Sex | the Ryouiku Techou |
|------|------------------------------------------|------|-----|--------------------|
| 1    | mentally-retarded                        | 2Y5M | Female |                        |
| 2    | Cerebral palsy                           | 5Y9M | Male |                        |
| 3    | Pierre Robin syndrome                    | 3Y3M | Male | B1                  |
| 4    | 3P trisomy                               | 12Y1M | Female | A                  |
| 5    | Epilepsy (West syndrome)                 | 6Y6M | Female | A                  |
| 6    | Cerebral palsy                           | 5Y8M | Male | A                  |
| 7    | mentally-retarded                        | 3Y7M | Female | B1                  |
| 8    | mentally-retarded                        | 5Y1M | Male | A                  |
| 9    | mentally-retarded                        | 8Y   | Male | A                  |
| 10   | Cerebral palsy                           | 4Y10M | Male |                        |
| 11   | Epilepsy (West syndrome)                 | 5Y1M | Male | A                  |
| 12   | Chromosome aberration (8p-synd)          | 13Y11M | Male | A                  |
| 13   | Cerebral palsy                           | 7Y4M | Male |                        |
| 14   | Down syndrome                            | 1Y4M | Male |                        |
| 15   | Cerebral palsy                           | 13Y6M | Female |                        |
| 16   | Cerebral palsy                           | 4Y7M | Female | A                  |
| 17   | Cerebral palsy                           | 4Y10M | Male | A                  |
| 18   | autism                                   | 9Y4M | Male | A                  |
| 19   | Cerebral palsy                           | 7Y9M | Male | A                  |
| 20   | Mowat Wilson syndrome                    | 5Y3M | Male | A                  |
| 21   | mentally-retarded                        | 15Y5M | Female | A                  |
| 22   | Mowat Wilson syndrome                    | 7Y7M | Male | A                  |
| 23   | Pena-Shokeir                             | 19Y10M | Female | A                  |
| 24   | Bourneville-Pringle                      | 13Y | Male | A                  |
| 25   | microcephaly                             | 16Y | Male | A                  |
| 26   | mentally-retarded                        | 9Y10M | Male | A                  |
| 27   | Chromosome aberration (13 trisomy)       | 15Y2M | Male | A                  |
| 28   | Cerebral palsy *mentally-retarded         | 15Y5M | Male | A                  |
| 29   | mentally-retarded                        | 6Y11M | Female | A                  |
| 30   | Cerebral palsy                           | 5Y8M | Male | A                  |
| 31   | Cerebral palsy *mentally-retarded*Epilepsy| 13Y7M | Male | A                  |
| 32   | mentally-retarded*Epilepsy               | 3Y5M | Male | A                  |
| 33   | Cerebral palsy                           | 14Y | Male | A                  |
| 34   | Cerebral palsy *mentally-retarded*Epilepsy| 12Y9M | Male | A                  |
| 35   | Cerebral palsy *mentally-retarded         | 17Y6M | Male | A                  |
| 36   | Head injury aftereffects                 | 13Y7M | Male | A                  |
| 37   | Head injury aftereffects                 | 16Y5M | Female | A                  |
| 38   | Artifact of brain tumor aftereffects*Epilepsy| 16Y4M | Female | A                  |
| 39   | HIE*Epilepsy                             | 6Y4M | Male | A                  |
| 40   | Cerebral palsy                           | 15Y | Male | A                  |
| 41   | Cerebral palsy                           | 9Y2M | Female | A                  |
| 42   | Chromosome aberration (6p-) mentally-retarded| 3Y5M | Female | B2                  |
| 43   | Cerebral palsy                           | 2Y  | Male | B2                  |
| 44   | Cerebral palsy                           | 11Y3M | Male | A                  |
| 45   | Cerebral palsy                           | 10Y5M | Female | A                  |
| 46   | Head injury aftereffects                 | 4Y2M | Male | A                  |
| 47   | Cerebral hemorrhage aftereffects         | 9Y4M | Male |             |
| 48   | asplenia                                 | 6Y3M | Male | A                  |
| 49   | dwarfism                                 | 6Y6M | Male | B2                  |
| 50   | Cerebral palsy                           | 13Y2M | Male | A                  |
fants. Outside Japan, several studies have used ABC\textsuperscript{3, 5–8}, ABC has a total of 58 questionnaire items: 15, 16, 7, 16, and 4 for irritability, lethargy, stereotypy, hyperactivity, and inappropriate speech, respectively. Medical staff, parents, caretakers, and other examiners who know the subjects well assess these items using a 4-point scale: no problems (0 points), minor problems (1 point), moderate problems (2 points), and major problems (3 points) to depict the severity of the problematic behavior. Ryouiku Techou is provided by the Japanese Government to people with intellectual disability, to assist with consultation regarding the disability and the provision of help from various welfare systems. It is classified into three stages (A, B1, B2), as described above. This study was approved by the Research Ethics Committee of Kobe International University (G2009-004).

| Table 1. Continue |
|-------------------|
| 51 Cerebral palsy | 4Y6M Male |
| 52 mentally-retarded | 4Y6M Female B2 |
| 53 schromosome aberration | 4Y7M Female |
| 54 Cerebral palsy | 9Y2M Male |
| 55 Cerebral palsy | 14Y5M Female |
| 56 hydrocephalus | 6Y2M Male A |
| 57 campomelic dysplasia | 10Y2M Male |
| 58 Cerebral palsy | 7Y2M Male |
| 59 Cerebral palsy | 9Y5M Female |
| 60 Cerebral palsy | 16Y7M Male A |
| 61 Artifact of brain tumor aftereffects | 17Y Female A |
| 62 Cerebral palsy | 11Y1M Male |
| 63 Cerebral palsy, mentally-retarded | 15Y2M Male |
| 64 Cerebral palsy, mentally-retarded | 13Y10M Female |
| 65 Acute encephalopathic aftereffects | 18Y1M Male |
| 66 Acute encephalopathic aftereffects | 5Y6M Female |
| 67 Acute brain fever | 9Y Female A |
| 68 mentally-retarded | 6Y7M Male A |
| 69 mentally-retarded | 6Y4M Male |
| 70 Head injury aftereffects | 14Y8M Male |
| 71 mentally-retarded | 6Y3M Female |
| 72 Influenza-associated encephalopathy aftereffects | 6Y7M Male |
| 73 mentally-retarded | 4Y0M Male |
| 74 autism | 7Y5M Male |
| 75 Cerebral palsy | 19Y Female |
| 76 Williams's syndrome | 2Y4M Female A |
| 77 Cerebral palsy | 4Y6M Male A |
| 78 Cerebral palsy | 8Y Male A |
| 79 Cerebral palsy | 7Y1M Male A |
| 80 PVL | 4Y4M Female |
| 81 PVL | 6Y5M Male A |
| 82 One side cerebellum loss | 2Y6M Female |
| 83 low birth weight infant | 6Y0M Female B1 |
| 84 mentally-retarded | 6Y Male A |
| 85 mentally-retarded | 5Y6M Female A |
| 86 Epilepsy | 6Y6M Male A |

Y, year; M, month

RESULTS

Significance of differences (p) observed between the A and non-A groups were as follows: irritability, p = 0.223; lethargy, p = 0.027; stereotypy, p = 0.018; hyperactivity, p = 0.174; inappropriate speech, p = 0.231. There were no significant differences between the groups for any items except those of stereotypy and lethargy (Table 3).

DISCUSSION

Physical therapists use exercise and physical therapy to help physically handicapped adults and children improve their basic physical capabilities. Physically handicapped children are often also mentally retarded\textsuperscript{31}. Pediatric physical therapists must increase their understanding of MR\textsuperscript{30},
and physical therapy approaches must consider MR\(^1\). According to the National Liaison Council of Four Development Support Facilities Organizations that examined 2,609 children attending schools for mentally retarded children, 56.0% had severe MR, 30.6% had medium MR, and 8.7% had autism\(^9\). Koike reported that 145 children attending a particular pediatric rehabilitation department included 54 with CP or other cerebral disorders, and 43 of these children also had MR. Physical therapists often treat mentally retarded children with CP. The better the motor functions, the lower the percentage of children with MR and problematic behaviors\(^{10}\). With regard to gross motor function classification system levels, the percentages of severe MR and problematic behaviors were reported as follows: Level I, approximately 5% or less of children with both disabilities were capable of ascending/descending stairs; Level II, approximately 20% and 5% or less, respectively, were capable of walking; Level III, approximately 30% and 5% or less, respectively, were capable of walking with assistive mobility devices; Level IV, approximately 25% and 5% or less, respectively, were capable of using electrically powered wheelchairs; and Level V, approximately 85% and 10%, respectively, had limited self-mobility even with the assistance of electrically powered wheelchairs. According to Carlsson et al., MR is observed in 43% of children with CP and 25% of them show severe MR. Twenty-five percent of parents of children with CP assess their children as behaving abnormally, and 18% assess their children as being borderline. Children with CP are known to be at a higher risk of behavioral and psychological problems than healthy children. However, for handicapped children including those with CP, the only problematic behaviors in this research that were influenced by the Ryuoku Techou standard were stereotypy and lethargy. All subjects were receiving physiotherapy and had impaired mobility. Lethargy relates to insufficient activity; stereotypy relates to insufficient movement repertoire. Therefore, the examiners were readily able to evaluate problematic behaviors. The main limitation of this study was that there were some subjects in the non-A group who not Ryuoku Techou holders. Although the examiners knew the subjects well, this study was limited by the fact that examiner knowledge of subjects varied. Few studies address problematic behaviors from a medical perspective. Despite such limitations, this study has significance and offers new contributions as a physical therapy study.

We would like to thank all staff at the hospitals and facilities participating in this study, the children, and their parents for their understanding and assistance.

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