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REVIEW ARTICLE

STUDENTS WITH HYDROCEPHALUS: AN OVERVIEW

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ABSTRACT

Hydrocephalus (HCP) is a congenital or acquired health condition that affects a little over 1 in 1000 births in the United States and is one of the most common "birth defects," afflicting more than 10,000 babies globally each year. A student with this health condition falls under the Other Health Impaired disability category of Individuals with Disabilities Education Act (IDEA). The (IDEA) is a law passed to provide education to children with disabilities around the country. Students with this disorder benefit from rehabilitation therapy and educational programs. Receiving treatment from an integrated team of medical professionals, rehabilitation specialists, and educational experts is critical to helping students with Hydrocephalus lead healthy lives with few limitations. Consequently, educators who provide intervention services and work in close collaboration with interdisciplinary teams need to know the best possible information about this condition. This paper provides a brief description of Hydrocephalus, an outline of problems that adversely affect the performance of students with Hydrocephalus and suggest a verity of intervention techniques for teachers and rehabilitation professionals consider.

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INTRODUCTION

Hydrocephalus is defined as an abnormal expansion of cavities (ventricles) within the brain caused by the accumulation of cerebrospinal fluid (CSF). Hydrocephalus comes from two Greek words: hydros, meaning water, and cephalus, meaning head. Kiarie (2006) stated that that Hydrocephalus entails the accumulation of a large amount of cerebrospinal fluid around the brain leading to an enlarged cranial cavity resulting in the compression of the brain, which has dire consequences. Hydrocephalus Association (2016) stated that Hydrocephalus is an "invisible disability" because it is not immediately visible, as it involves the abnormal accumulation of cerebrospinal fluid (CSF) within cavities called ventricles inside the brain.

Hydrocephalus Prevalence

In the United States of America, the prevalence of Hydrocephalus is "approximately 1 per 1000 births. Of those children, 80% require shunting during the first year of life. Hydrocephalus is also a common complication of virtually any insult to the child's nervous system, including intraventricular hemorrhage, brain tumors, infections, and head trauma (Perkin, 2016, p.6). In another study Hydrocephalus occurs as a birth defect; one in every 500 births. Every 15 seconds in the U.S., one brain injury occurs, and in some cases these injuries lead to the development of Hydrocephalus. In U.S. hospitals, approximately 75,000 people are diagnosed with Hydrocephalus per year. Out of 100 cases of Hydrocephalus, 50 cases are congenital, and the others are the result of brain injuries or other causes, such as spina bifida. Spina bifida is a type of birth defect called a neural tube defect and in the 70-90% of children born with spina bifida also develops Hydrocephalus. Great progress has been made in reducing the death rate related to Hydrocephalus thanks to medical advancements such as shunting procedures. The prevalence of Hydrocephalus indicates that the death rate of Hydrocephalus has decreased from 54% to 5% and the development of intellectual disability (ID) has also greatly decreased, from 62% to 30%.

Review of the Literature

According to a case study conducted at the Shanthiniketan Residential Institute for the Mentally Handicapped in Hyderabad, A.P., India (2016, August 16), children with Hydrocephalus usually suffer from headaches, vision problems, seizures and Hand-Eye coordination problems, which adversely affect their social skills and performance in academics. These

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students also suffer from other medical and learning problems. Teachers continue to seek new strategies, methods and interventions to educate students with Hydrocephalus. The Hydrocephalus Association (2016) reported that children with Hydrocephalus receive intervention services in preschool and early grades to improve their coordination and motor skills. This organization also mentioned that some students also receive physical and occupational therapy throughout their school years. This association also indicated that the success of these students depends on communication among teachers, therapists, and resource specialists. For the case study on Hydrocephalus mentioned above, a telephone interview was conducted with the Secretary of the Shanthiniketan Residential Institute for the Mentally Handicapped,

Mr. Baleshwar. Shanthiniketan is a recognized institution of the Central Government of India which has served in the field of Special Education since 1985. Mr. Baleshwar mentioned the services at Shanthiniketan for students with Hydrocephalus, such as Hand-Eye coordination, motor coordination, physical and occupational therapy. To qualify for these services, all students need to undergoa psychological evaluation and medical diagnostic tests conducted by a multidisciplinary team of professionals and a neuropsychologist; all data gathered about each student with Hydrocephalus during testing sessions are used to develop an Individualized Education Program (IEP) for the student. Unsurprisingly the services offered at Shanthiniketan are similar to the services described by the Hydrocephalus Association. Many children with Hydrocephalus suffer from lifelong brain damage. They need intervention services to be successful in life and academics. By working with professionals including pediatricians, special education teachers, mental health providers, occupational therapists, developmental therapists, and pediatric neurologists, children can learn to manage their disability and lessen the lifelong effects (Hydrocephalus: Causes, Symptoms & Diagnosis, n.d.p. 6).

Interventions for Students with Hydrocephalus

Students with Hydrocephalus suffer from chronic headaches. During episodes of headaches, teachers should suggest that students lie down and refrain from regular academic activities. Teachers are advised not to provide instruction to students with Hydrocephalus during headache episodes because the pain may interfere with the cognitive ability of the students during learning activities (A Teacher's Guide To Hydrocephalus: Physical Problems Associated with Hydrocephalus, 2002, p.2. 10). Hand-Eye coordination is the ability to coordinate eye movement with hand movement in processing visual input to execute physical action. Due to poor Hand-Eye coordination, students with Hydrocephalus suffer from problems with fine-motor skills. Because fine-motor skills affect hand function, a student with poor fine-motor skills will exhibit problems with handwriting, including writing or taking notes during class slowly and poor handwriting skills and they can benefit from occupational therapy. Teachers are encouraged to provide accommodations and modifications such as Hand-Eye coordination, offering additional time for writing tasks,and providing handouts and their teaching notes to these students (A Teacher's Guide To Hydrocephalus: Physical Problems Associated with Hydrocephalus, 2002, p.2. 10). Research shows that most individuals with Hydrocephalus suffer from seizures. Neuropsychologists recommend that children should take medication to prevent or reduce the occurrence of seizures episodes. When a student suffersa seizure, professionals are advised to maintain intervention services for example: to stay close to the student, to not allow people to gather around, to ensure the free flow of air around the student, to move furniture and other objects that might injure the student, and to not hold down the student (A Teacher's Guide To Hydrocephalus: Physical Problems Associated with Hydrocephalus, 2002, p.2. 10). Due to impaired vision, verbal and perceptual skills, students with Hydrocephalous suffer from learning difficulties. Teachers need intervention services for learning available for all students. The following are suggested strategies to reduce these problems offering extended time for students to complete tasks, rehearsing the learned activities with students, using task analysis in teaching, and providing reinforcement to promote learning. (A Teacher's Guide To Hydrocephalus: Physical Problems Associated with Hydrocephalus, 2002, p.6.).

RESULTS

Hydrocephalus is a congenital or acquired health condition that affects a little over 1 in 1000 births in the United States. Some of the common problems identified in the analysis of data from students with Hydrocephalus are loss of coordination, difficulty walking or gait problems, seizures and learning problems. To promote the academic success of students with Hydrocephalus, it is important to provide intervention services. Because of the complicity of hydrocephalus, intervention services are developed and delivered by the multidisciplinary team (Hydrocephalus: Causes, Symptoms & Diagnosis. (n.d.). Healthline. P. 6) Therefore, it is imperative that educators work together with multidisciplinary team to provide effective interventions that support these students and help them become more successful in their academic endeavors. Both academic and medical interventions are necessary. Despite the fact that this article has listed intervention services for headaches, Hand-Eye coordination, seizures, and academic remediation that have proven successful in the classroom, further studies are needed to find strategies to promote the academic success of students with Hydrocephalus.

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