TRAUMATIC BRAIN INJURY IN K-12 STUDENTS II: RESPONSE TO INSTRUCTION--WHEN WILL THEY EVER LEARN?

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Most students who have sustained severe traumatic brain injury (TBI) appear normal when they return to school. Hopeful parents, encouraged by deceptively positive medical feedback, expect a return to regular education. In the classroom, the students initially seem almost ready to resume learning, but instead they fall farther behind grade level each year and begin to act out. Most can be trained to compensate for their acquired educational deficits. Teachers oriented to TBI by a professionally prepared video can implement simple classroom interventions at critical moments. A multidisciplinary team effort can provide pull-out instruction on strategies for improved self-control, study skills, and decision making. Some students will prove to need more intensive training from full-inclusion special education. The magnitude and scope of this covert and underpublicized problem in the United States should alert the special education communities in other nations to deal with this epidemic of unrecognized and unrehabilitated brain injury.

This is the second in a series of three papers on special education services for traumatic brain injury (TBI) in K-12 public schools in the United States. The first paper described an epidemic of unclassified (and therefore improperly managed) head injuries and explained how to rapidly identify them (Schutz, Rivers, McNamara, Schutz, & Lobato, 2010). This paper discusses how the public schools can immediately deal with such a large group of students with special needs once they have been identified.

The Scope of the Problem

In the United States, public schools are required by a federal law to classify students who acquired medically significant brain injuries in the category of TBI, and to provide them with disorder-appropriate evaluations, monitoring, and programming. This law prohibited the prevailing prior practice of assigning students with TBI to programs for other educational disabilities, because such programs regularly fail to meet the special educational needs created by TBI (Individuals with Disabilities Education Act, 1990). At present, many schools classify under TBI only students with extreme injuries causing obvious physical or speech disabilities. The full-inclusion classes for TBI are designated for severe physical disorders and disabilities.

This identification of the legal/educational category of TBI with profound physical disablement promotes the neglect of the majority of severe TBI survivors, who have no obvious physical, communicative, or intellectual deficits. In fact, TBI is known colloquially as the *silent epidemic* because within a few months the majority of survivors looks and acts normal most of the time. The present-day practice of assigning only one to two percent of the most obviously disabled students to the TBI category leaves many unclassified, and therein denied the special help they need. Learning at an abnormally slow normal rate, these silent-epidemic students eventually develop prominent knowledge gaps and declining grades. When their achievement scores fall low enough, many get classified in a different category of exceptionality and earn a special diploma, while many others become so frustrated and alienated by their helpless decline that they drop out. Although longitudinal research has not yet followed enough to adulthood, the existing studies consistently describe unrelenting educational, vocational, and psychosocial disablement (Schutz et al., 2010; Schutz, Rivers, Schutz, & Proctor, 2008; Schutz & Schutz, 2004). The post-educational prospects for these students appear dismal without

specialized intervention (DePompei & Bedell, 2008; Janus, Mishkin, & Pearson, 1997; Taylor et al., 2003).

For many years, pediatric neurorehabilitation specialists have called for the schools to develop their own, fully specialized TBI programs to continue the intensive treatment of students who have left the healthcare system (Blosser & DePompei, 2003; Corbett & Ross-Thompson, 1996; Walker, 1997). Unfortunately, the schools were never provided with the funding, leadership, or administrative mandate to develop the kind of intricate, expensive programming that is routinely provided in the most prominent, specialized hospitals. The present authors have worked in or with public schools for a combined total of 40 years without ever encountering a true cognitive rehabilitation program on a public school campus. The more ambitious programs are simply too elaborate to implement in this setting (Schutz & Schutz, 2005).

In private discussions, administrators and teachers have admitted that they choose not to designate TBI for physically intact, brain-injured students because they have no appropriate resources to address special symptoms. Hence, *lost* children with TBI are unlikely to be *found* by the schools until teachers are equipped with *universally accepted*, practical principles for meeting these special needs. In this paper, we propose a data-based initial intervention protocol for TBI that can be implemented with generally available resources.

Key Facts About TBI Intervention For Teachers

The first step in the intervention process is to convene a child study team. This team should include all relevant personnel, including the classroom teachers, school psychologist, school counselor, speech-language pathologist, occupational therapist, special education teacher, and an administrator. School officials should be aware that convening a child study team is mandatory on return to school after severe TBI, irrespective of the symptoms the student does or does not show at that time. Any delay in initiating a team process cannot be justified, as students allowed to decline are seldom able to catch up at a later time (Schutz et al., 2010).

The second step is to educate the team members about the unique nature of educational disablement in TBI. Most school professionals are operating under a number of important misconceptions about TBI, for example, the myth of complete recovery from a brain injury. A child study team cannot determine the nature and extent of the academic disablement indicated by the diagnosis of TBI without first understanding what is unique about the disorder. They can begin by viewing one of the educational videos prepared by experts in pediatric neurorehabilitation (Savage & Woolcott, 1994; Slomine et al., 2006; Ylvisaker et al., 2001) to establish a conceptual framework for their assessment and intervention.

The most basic premises of educational evaluation for TBI are summarized below:

(1) Injuries are readily identified by a simple health history or a detailed educational history. However, most cannot be identified by observation: Children with TBI usually look just like the other children. The serious academic and behavioral deficiencies that gradually emerge closely resemble other, naturally occurring educational-achievement and psychosocial adjustment problems. In addition, neither the child nor the parents is likely to recognize the persistence of the brain injury symptoms, the risk of disability, or the special needs (Schutz et al., 2010).

(2) Students with TBI show a variety of strengths that are normally treated as ruling out special education, including intact language and access to the knowledge base. Achievement testing may appear to indicate readiness to learn on grade level, especially in the first year back in school (Savage & Woolcott, 1995). Despite their unremarkable test scores, they do not learn at a normal rate, nor can they apply their learning as well as peers. The longer they remain in school, the farther these deficits leave them behind peers (Taylor et al., 2003). Therefore achievement tests must be regarded as non-specific for the early manifestations of TBI.

(3) TBI's educational impact is a function of the severity of the original injury. The durations of the coma duration and the amnesia surrounding the impact are the main severity indicators. Thus the degree of risk for long-term disablement can be determined by facts established before the return to school (Schutz et al., 2010).

(4) Whereas specific symptoms of each injury are unique, most survivors experience the same primary, long-term impairments (of attention skills, new learning, and executive function) and educational disabilities. Consequently, most disabilities respond to common or similar solutions (Bleiberg, Cope, & Spector, 1989; Sohlberg & Mateer, 2001; van Zomeren & Brouwer, 1994).

It is incumbent on the child study team to classify the student in the TBI category, not only as a matter of law but to assure a proper education. Correct classification assures that the team will develop a program for TBI, rather than to use one designed for some other, inapplicable disability. If the prevailing practice at the school is to place all children classified with TBI in a physical impairment class, this practice should be set aside immediately. The team should always retain the option for a regular education placement for students with TBI. We have found that most students with the subtler forms of severe TBI can succeed in regular classrooms after completing the training to cope with their symptoms (Schutz & Schutz, 2000).

Response to Intervention in the Regular Classroom

In assuming that the brain has healed completely or almost completely, the student and family usually insist on regular education placement and expect to encounter no problems. Therefore when the child returns to school or at the earliest opportunity thereafter, the TBI education video should be screened for the student and family. The counselor can either provide an age-appropriate explanation of the information to the students who are not mature enough to understand the video, or record a child-level video that can go home for repeated viewing. The student and family are taught that residual learning and executive deficits of TBI are permanent, and that coping effectively with these deficits is necessary for a good academic recovery. They learn that the regular education placement is a trial intervention, which may or may not be adequate to meet the child's needs. Some parents need psychosocial support for these insights, so formation of a school-based family support group can be encouraged (Schutz & Schutz, 2005).

A specific set of accommodations is recommended for regular education after TBI. The initial IEP should specify close monitoring of the child's behavior, concept learning, and academic performance by the counselor, the school psychologist, and the teachers, as well as the family. Notification of problems in the classroom signals an emerging need for closer cross-team communication. We ask each student to carry a notebook for recording the disabled behaviors and attempted interventions, with staff and family reading the recent entries to stay abreast of developments. Conscientious notebook use reduces the frequency of conferences and meetings.

Oral assignments are often missed because the student is not paying attention. Simply warning the student to pay better attention next time is rarely adequate. The teacher can delay the announcement until the student's eye gaze indicates attention or hand out a printed assignment (Schutz & Schutz, 2004). Homework is often not turned in because materials were not brought home or the completed work was not brought to school. To assure that materials are conveyed appropriately, the student should be given close supervision just before each departure. This attention may be available from an aide or peer buddy in class and from a parent or sibling at home, and should be arranged as soon as possible after the classroom placement. These helpers can also train a more disciplined, step-by-step procedure for searching and packing up.

Students with TBI react poorly to change, and even more poorly to surprises. Orienting the child to a new classroom individually before the first day of class, and distributing a fully explicit schedule of class activities can reduce transitional disruption. The child can be prepared even more effectively if a family member or peer reviews each day's planned activities before class begins. During class, the teacher may want to announce the major transitions and allow enough time to decouple from the prior activity and think about the upcoming one. Some gifted teachers even stage transition rituals that structure and pace each shift. Students in high school or post-secondary education can self-transition by keeping and observing a complete daily schedule, which can also be used to systematically plan homework time (Schutz, 2007b).

Because of their diminished learning rate, students can retain a normal amount of instruction only if they spend more time studying. Many show defective rote learning, and can learn the expected amount of information only by the use of high-efficiency study techniques such as tape recording and transcribing lectures, reducing material by highlighting and self-testing, and distributing the study sessions over time (Robinson, 1970; Schutz, 2005a; Schutz, 2007b; Schutz et al., 2009; Schutz & Schutz, 2004; Sohlberg & Mateer, 2001; Wilson, 2005). However, after intensive training in these methods, 29 of 52 students with severe TBI earned grades equal to or better than their pre-injury grade point averages (Schutz & Schutz, 2000).

Most students believe that they do not need to do extra homework, so family support may be needed to implement an intensified study schedule. Home study sessions should be set up in a single location with minimal distractions and no tempting entertainments. If the family lacks the resources or inclination to manage the studying, a close-monitoring study hall or tutor can be substituted. Students who do not increase their study time when so instructed tend to have ongoing learning deficiencies that require permanent full-inclusion special education placement.

Unexpected commotion or emotion can overload the brain and scramble thoughts. A quick relaxation procedure or a break can restore clear thinking (Sbordone, 1997). An aide or a peer *buddy* who is continuously monitoring the student can cue for this strategy. Some students experience this anxious overload whenever they take tests or give oral presentations. They may require more intensive individual relaxation therapy or biofeedback (Schutz, 2005b).

TBI reduces motivation, and an out-of-control academic decline can destroy it (Ylvisaker et al., 1998). The undermotivated student pays too little attention to tasks, which magnifies all of the deficits. Therefore motivational improvements help to upgrade cognitive function generally (Sohlberg & Mateer, 2001). The counselor, school psychologist, and special educator may be delegated to develop a motivational enhancement program (Schutz & Schutz, 2004).

The most disabling symptom of TBI is impulsive behavior at decision choice points (Bleiberg et al., 1989; Crawford & Henry, 2005). In impulsive initiation, the student starts talking or acting without considering the reasons to stay quiet or inactive. In impulsive release, the student begins a course of action or speech without considering how it will come out, let alone how it will work out. Some of these behaviors also may be executed too quickly or carelessly (Wood, 1987). Finally, in impulsive acting out the student pursues an object of desire or release without considering the reasons to refrain from gratifying the urge. These behaviors can be controlled by cuing to stop and think (Schutz, 2007a; Stuss, Mateer, & Sohlberg, 1994). If the behavior is infrequent and someone is available to monitor the child's reactions, this symptom can be fully managed in the classroom. If the behavior is frequent or the desired response is difficult to cue, it may be necessary to recruit a helper to cue the student. A family member can provide such cuing away from school. This form of training is extremely situation specific and must be re-established in each new classroom and situation (Ylvisaker, 2005).

Here are some examples of impaired decision making at a high-profile choice point. Students often fail to demonstrate what they have learned because they read tests too quickly and answer them impulsively. Reading questions completely and answering carefully are strategies that these students can learn (Schutz et al., 2008). Students slow to pick them up may need extended individual instruction by the speech therapist and/or OT. As another example, difficult tasks produce avoidable errors when the need for extra effort is not recognized (Thomas & Trexler, 1982; Stuss, 2008). Students cued to attend to task difficulty often increase their efforts (Ylvisaker, Szekeres, & Feeney, 1998), but more mature students can permanently improve high-level performance by self-cuing (Sohlberg & Mateer, 2001). Speech and occupational therapists and neuropsychologists train hospitalized adults to use these strategies (Kennedy et al., 2008), and the methods can be adapted for use with children and adolescents (Ylvisaker, 2005).

Summary and Conclusions

The failure to properly classify a child returning to school after severe TBI creates a no-win situation for everyone. Over a span of years these students are quite likely to become academically and socially incompetent. The parent may be protected from worrying about brain symptoms by empty assurances from the hospital and fallacious assumptions about TBI, but in that case the inevitable academic and social failures will be attributed to the child *as a person*, a charge that is as unfair as it is destructive. The classroom teacher is left to teach a child who cannot be properly taught and to manage unmanageable behaviors. These impossible circumstances turn normal children into pariahs, chastised for slacking off and despised for repeatedly disrupting the whole class as well as the whole family.

These children do not have to be pariahs. In fact, aggressive rehabilitation has turned many of them back into good students, with some former trainees earning top honors at every level of education. The first intervention recommended for the schools is family and professional education to assure proper choice and use of corrective strategies, such as adapted procedures for studying and scheduling. Information-processing and decision-making tasks can be restructured to place all needed materials and information at hand, and a careful response style can be cued. Many of the students will learn these

coping techniques from individual instruction, augmented by some classroom cuing and family support. Others will need a more intensive learning experience, more structure, and formal social skills training in a full-inclusion classroom. We will discuss the structure and content of such full-inclusion programming in a subsequent paper.

As education (as well as rehabilitation) professionals, the authors composed the TBI intervention protocol to be viable for current use in public schools. It does not require hiring new personnel or purchasing equipment. Perhaps more fundamentally, it does not demand the mental dexterity to teach a class while implementing complex protocols and accommodations for one student. In fact, it adds relatively few new demands. It does require recognizing TBI as a unique problem requiring its own educational solutions, but even the United States Congress realized this special status twenty years ago. A modicum of initiative is needed to alert the family and the school system that they cannot do business as usual. Finally, although the TBI disabilities will eventually intrude and compel the expenditure of extra pedagogical effort under any circumstances, an informed child study team and classroom teacher can apply their efforts to preventative and restorative intervention rather than to mere damage control.

We have documented this underserved population in the public schools in the United States, but this problem observes no geographical boundaries. It can be traced to a universal failure to disseminate expert knowledge about the long-term educational effects of TBI. The stark failure to address this problem within one country's school system should provide a warning to the schools of all nations. We cannot fathom how much damage is being done by our unwitting neglect until we have searched for the problem in our schools. By learning how to deal with this epidemic, we can use our present resources to help the damaged children we find.

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