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Hypoglycemia

Can the School Respond?

Severe hypoglycemia, characterized by loss of consciousness and/or seizures, occurs with an alarming frequency (4–31% incidence) in school-aged children with insulin-dependent diabetes mellitus (IDDM; 1–3). Most of these hypoglycemic episodes are reported to occur during the daytime and are related to inappropriate food intake or failure to adjust insulin or consume more food to compensate for exercise. Children may spend more than half their daytime hours within the care of the school system, yet little is known about how well school systems are prepared to assist the child who is experiencing hypoglycemia. This study was designed to survey the preparedness of the school systems in Virginia to respond to a hypoglycemic emergency.

Surveys requesting 1) the number of students within the system known to have IDDM, 2) the person in each school responsible for treating a student's hypoglycemia, and 3) who within the schools has the authority to administer an injection were mailed to health coordinators in each school district in the state. Eighty-four (62.6%) school systems representing 57% of all school-aged children replied. Responses were evenly spread throughout rural areas, small towns, and large metropolitan cities.

Seven hundred fifty-two (0.13%) of the total number of students in these school systems were known to have IDDM. Eight systems representing >40,000 students failed to identify any children with IDDM. Thus, there may be a significant number of children with IDDM who have not been identified within their school system. In 39% of the school systems, a nurse was responsible for treating a child's hypoglycemic episode. However, principals, teachers, secretaries, and cafeteria workers were also given that responsibility. In eight systems (9.5%), the child was the primary person responsible for treating his/her hypoglycemia, whereas two school systems stated that no one had been designated to provide this care. Half of the school systems permitted the administration of an injection by school personnel. In schools that authorize a school nurse to administer an injection, less than half (45.8%) reported that school nurses were present in each school. Forty-nine systems (58.3%) stated that a rescue squad was called before the initiation of any therapy.

Children with IDDM ride school buses, eat one or two meals and snacks during the school day, attend school parties, and participate in strenuous physical activities. Academic performance cannot be optimal in the child who is experiencing either hypo- or hyperglycemia (4). Thus, the maintenance of near-normal blood glucose levels should be an important issue for the schools. Unfortunately, the data we collected suggest that school systems may not be aware that a student has IDDM, and may not have developed a plan to assist the student with IDDM in achieving his/her health and academic potentials.

Although this survey does not define the full extent of the relationship between the school systems and their students with IDDM, the results suggest areas for further research and education. If near-normal blood glucose control is to be a treatment goal for the child with IDDM, then hypoglycemia may be expected to occur during the school day (5). Parents must be encouraged to inform the schools of their child's diabetes and assist them in learning to help care for their children. School nurses are not always available; therefore, other members of the school staff need to be educated about diabetes, and protocols for preventing and/or treating hypoglycemia need to be established. Health-care providers need to ensure that pertinent educational material is provided to all school personnel who have contact with children with diabetes. Designated personnel should be allowed to administer injectable glucagon with standing orders from a physician and parental permission (6). Children must be permitted to carry their own source of rapid-acting glucose and be allowed to consume it when needed.

The data presented above were obtained in only one state, and its educational system may not be representative of the rest of the country. However, the risks of severe hypoglycemia for the child with IDDM while attending school are not unique to this state. Diabetes care providers need to carefully assess the resources available to their patients in each school district. In addition, school administrators need to be reminded of their legal responsibilities and the needs of the child with diabetes.

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Erratum

In the article titled "Fructose-2,6-Bisphosphate in Control of Hepatic Gluconeogenesis: From Metabolites to Molecular Genetics," by Simon J. Pilkis, M.R. El-Maghrabi, and T.H. Claus (*Diabetes Care* 13:582–99, 1990)

on p. 583, lines 47 and 48 should read "Control of gluconeogenesis occurs on three levels. The first involves regulation of substrate supply."