

CONCEPTUAL FRAMEWORK WITH REGARD TO UNDERSTAND THE PROBLEM AND MANAGEMENT OF DIABETES IN SCHOOL CHILDREN

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ABSTRACT

The purpose of the study was to bringout a conceptual framework in response to growing problem of diabetes in school children. Diabetes is one of the most common chronic diseases of childhood, and monitoring trends in diabetes diagnoses is a difficult but important challenge. Unlike many other childhood diseases, there is no national reporting system to track diabetes, and early studies that were conducted on youth did not represent the diverse population that exists in the India today. In type 1 diabetes, the pancreas stops making insulin. With type 1 diabetes, you need to get insulin from a shot or a pump. Type 1 used to be called "insulin dependent" or "juvenile diabetes." In type 2 diabetes, the pancreas still makes some insulin but the cells can't use it very well. Type 2 used to be called "adult onset diabetes" but now more kids are getting type 2. The key to taking care of diabetes is to keep your blood glucose as close to normal as possible. The best way is to eat healthy foods, get exercise every day, stay at a healthy weight, take your medicine, and check your blood glucose to see how you are doing. Kids with type 2 diabetes may need to take insulin or pills to help the body's supply of insulin work better.

Keywords: Diabetes, Children and Insulin.

INTRODUCTION:

A large project called "SEARCH for Diabetes in Youth" has been underway in the U.S. since the year 2000. The SEARCH study is the largest surveillance effort on diabetes in youth conducted in the U.S. to date. Through the SEARCH study, the number of cases of physician-diagnosed diabetes in six centers across the U.S. is being collected, with information about the type of diabetes, the race/ethnic group of the child, gender, and the age of diagnosis. SEARCH was funded by the Centers for Disease Control and Prevention (CDC) and supported by the National Institute for Diabetes and Digestive and Kidney Diseases (NIDDK). In 2006, a summary report was written by the SEARCH for Diabetes in Youth study group, and published

in *Pediatrics*. Key findings related to prevalence, age, type of diabetes, age and race/ethnicity are summarized below.

- Type 1 diabetes was by far the most prevalent type of diabetes in youth aged 0-19, with an overall prevalence of 154 cases per 100,000 children.
- The overall prevalence of type 2 diabetes in youth aged 0-19 was 22 cases per 100,000 children.
- The overall prevalence of any type of diabetes in youth aged 0-19 was 182 cases per 100,000 children.
- There were significantly fewer cases of diabetes in the 0-9 age category (79 cases per 100,000 children) than in the 10-19 age group (280 cases per 100,000 children).
- Type 1 diabetes was more prevalent in the non-Hispanic white population than in any of the other race/ethnic groups.
- Type 2 diabetes was most prevalent in the American Indian group, followed by Black, Asian/Pacific Islanders, Hispanic and White (descending order of prevalence).
- Data gathered from the six centers have been extrapolated to estimate diabetes trends in the U.S.:
- In 2001, there were 154,000 physician-diagnosed cases of diabetes in the 80.7 million children and adolescents in the nation.
- This corresponds to an overall diabetes diagnosis rate of 1 out of every 523 youth.

Diabetes is a serious chronic disease that impairs the body's ability to use food for energy and results in high levels of glucose (or sugar) in the blood. Diabetes can lead to both short-term and long-term complications. Short-term problems can include high (hyperglycemia) or low (hypoglycemia) blood glucose levels that significantly affect the student's ability to concentrate and learn, and can cause serious immediate consequences such as brain damage or death if not treated. In addition, diabetes can cause serious complications that develop over time (such as vision problems and kidney disease), but people with diabetes can take steps to control the disease and lower the risk of complications.

Diabetic ketoacidosis (DKA) results from absolute or relative deficiency of circulating insulin and the combined effects of increased levels of the counterregulatory hormones: catecholamines, glucagon, cortisol and growth hormone.

TYPES AND VARIETIES :

There are two main types of diabetes that can affect children. Type 1 diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 develops when the body's immune system destroys pancreatic beta cells, the only cells in the body that make insulin. Insulin is the hormone that allows glucose in the bloodstream to enter the cells of the body, where it can be converted into energy. This form of diabetes usually strikes children and young adults, although the disease can develop at any age. In order to survive, people with type 1 diabetes must have insulin delivered by injections or a pump and this insulin must be carefully balanced with food intake and physical activity. Type 2 diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. It usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. Type 2 diabetes is increasingly being diagnosed in children and adolescents. Some people with type 2 diabetes may control their blood glucose levels through diet and exercise. Others are required to take oral medications, insulin, or both. Gestational diabetes is a form of glucose intolerance that is diagnosed in some women during pregnancy. During pregnancy, gestational diabetes requires treatment to normalize maternal blood glucose levels to avoid complications in the infant. After pregnancy, gestational diabetes generally disappears, although women who have had it are more likely to develop type 2 diabetes later in life. The term "brittle" diabetes is sometimes used, although its use is no longer preferred. "Brittle" diabetes refers to unpredictable highs and lows, often within very short periods of time, as a result of even small changes in activity, nutrition, or insulin usage.

AFFECTING THE SCHOOL CHILDREN:

It is important to understand the effect diabetes has on a particular student and how that student's diabetes is treated. Diabetes can be a disability and can have substantial impacts on a student's academic performance and safety at school, but it does not affect all students in the same ways. Diabetes can affect students in several ways: First, diabetes must be managed 24 hours a day, 7 days a week. Diabetes care requires an ongoing treatment regimen, as discussed in the next two questions. The treatment regimen affects the child's daily schedule and, if appropriate provisions are not made, may impact the ability of the child to have equal access to all school-related activities. Second, blood glucose levels that are not kept in target range may result in hypoglycemia or hyperglycemia. Hypoglycemia is the most common and immediate concern for school-aged children. Severe hypoglycemia can result in loss of consciousness and is life-threatening. Both hyperglycemia and hypoglycemia can affect a student's cognitive functioning and, thus, school performance. Finally, even where blood glucose levels are maintained within reasonably acceptable ranges fluctuations can affect a student's ability to concentrate and learn. In addition, diabetes may have an adverse impact upon the ability of a student to provide self-care or to engage in daily living tasks such as eating, communicating, or even walking. Effective diabetes care is essential for a student's immediate safety and ensures a student will be able to participate in all school activities.

NEED TO PERFORM THE DIET FOR STUDENTS:

The nutritional needs of a student with diabetes do not differ from the needs of a student without diabetes. Both should eat a variety of foods to maintain normal growth and development. The major difference for children who use insulin is that the timing, amount, and content of the food that the student with diabetes eats are carefully matched to the dosage and peak action of the insulin. The student's meal plan is designed to balance nutritional needs with the insulin regimen and physical activity level. There are usually no forbidden foods for people with diabetes.

CONCLUSION:

School-age students with diabetes most often have type 1 diabetes and require insulin by injection or by an insulin pump. School-age students with diabetes spend 30-35 hours per week in the school setting; this represents more than half of their waking weekday hours. It is therefore vital that school personnel, parents/guardians and students are clear and confident in their roles and responsibilities during this time. Mild to moderate hypoglycemia is common in school. Symptoms can easily be misinterpreted by the student and by school personnel, placing the student with diabetes at serious risk of severe hypoglycemia. It is important that students be treated for their hypoglycemia and not mistakenly disciplined for what looks like misbehaviour but may actually be symptoms of blood glucose fluctuations. Particularly in the case of teens, school personnel could easily misinterpret symptoms of hypoglycemia or hyperglycemia as fatigue or as being under the influence of drugs or alcohol. Students with diabetes may be physiologically unable to recognize an emergency situation. When children with diabetes have hypoglycemia, they are cognitively impaired. It is imperative that a school action plan is in place to quickly treat hypoglycemia before it becomes an emergency.

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