



**TYPE 1 DIABETES IN CHILDREN : EARLY DIAGNOSE AND MANAGEMENT
CHALLENGE**

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INTRODUCTION

Type one diabetes is a chronic disease that causes a lack of insulin, an essential hormone. It requires daily management with insulin injection and glucose

monitoring. Both children and adults can be diagnosed with type 1 diabetes. Type one diabetes is a lifelong autoimmune disease that prevents your pancreas from making insulin, a hormone. T1D previously known as juvenile or Insulin independent-diabetes. Type 1 diabetes is one of the most common chronic diseases that affects children in the U.S. But adults can develop it too. In the U.S., over 1.7 million people live with it. If you don't have enough insulin, too much sugar builds up in your blood, causing hyperglycaemia (High blood sugar). This leads to serious health problems or even death if it's not treated. In simple words, diabetes is a condition in which the body can't make enough insulin, or can't use insulin normally. Type 1 is an autoimmune disorder. The body's immune system damages the cells in the pancreas that make insulin. Insulin is a hormone. It helps sugar in the blood get into cells of the body to use as fuel. When glucose can't enter the cells, it builds up in the blood. This is called high blood sugar. High blood sugar can cause problems for the body. It can damage blood vessels and it can harm the eyes, kidneys, and heart. It can also cause symptoms such as tiredness.



AIM

Type 1 diabetes in children is a condition in which child's Body no longer produces an Important hormone Insulin . Children need insulin to survive, so the missing insulin needs to be replaced with injection or within an insulin pump. Don't type diabetes in children used to be known as juvenile diabetes or diabetes. The diagnosis of type one diabetes in children can be overwhelming, especially in the beginning. suddenly, on children's age - Must learn how to give injection. count, carbohydrate, and monitor blood sugar . There is no cure for type 1 diabetes in children, But It can be managed in early stages.

A children is a more at risk for type 1 diabetes if they have any of these risk Factors like if Any family member has That condition if the Child's age is 4 to 6, or 10 to 14 . A new medicine was approved to help delay the onset of Type 1 diabetes for the people ages 8 An older who are at high risk or have early signs of type 1 diabetes. Children must have daily injection to Make it Normal Level

RESULTS

According to some recent (2025 to 2026) that

1 .earlier detection is improving nowadays because the large screening program like grannies FRIDA children before symptoms appear and early detection dramatically, reduce the dangerous complications and only 2.5% of the early detective children developed severe at and this supports a shift childhood screening for the type one type of risk.

2. New treatments are being tested Specially in children, A new or LGLP -Drug lower blood sugar significantly in kids, aged 10 to 17 and it may become the first pill approved for the paediatric diabetes and we can expand the treatment like we can give the drug tirazepatide Are being extended to children, and this is very important because current option like insulin Are often insufficient.

3 .delay or prevent the type one diabetes, older immune system are showing new promises like it can preserve insulin producing cells in newly diagnosed children There are some drugs that can Delay the disease onset.

4 .Cure early stage, but promising because of the islet cell Transplant with no longer after treatment and cell that avoid the immune attack because early human trials show insulin production without Rejection.

5. Discovery of new genetic forms of diabetes in Shetland scientist identified a new genetic cause of diabetes in infant and this formed is linked to the neurological conditions as well. That means diabetes in children is more complex than just diabetes .

6. Diabetes rising in the type diabetes is increasing the young people and it behaves differently in children and maybe more aggressive and this is becoming a major global health .



DISCUSSION

Recent advance in the understanding and management of the diabetes mellitus in the children shows from reactive detection , prevention and personalise care. Traditionally, Paediatric diabetes, special type one diabetes has been diagnosed only after symptoms Appear, Often, when the child is already at risk of the serious as diabetic acidosis, however, a new screenings Demonstrate that identifying at risk children before clinical onset can significantly reduce these dangers. This suggests that routine early screening could become a strategy In paediatric healthcare.

Another important development in the expansion of the treatment option,

Talor, especially for the children. For many years, management relied heavily On the insulin therapy, unlimited oral medication now near drug classes Are being tested or approved for younger patient. These therapy is not only improved with the blood sugar control, but also address related issue like obesity, which increasingly linked to the diabetes 2 The children, the development of oral medication is particularly significant at as it may improve treatment and quality of life. In addition to the treatment , research is increasingly or prevent, preventing the onset of disease. Immunotherapy approaches , including drugs represent a major breakthrough by targeting the underlying auto immune process rather than just managing symptoms. This Marks a conceptual shift in how paediatric diabetes is approached from lifelong disease management to potential disease modification. Technological innovation are more transforming care device, such as continuous glucose, monitor and automated insulin. Delivery symptoms are moving towards (Closed loop model) Often describe as an artificial pancreas. These system supported by advanced in data analyses and article intelligence allow for more precise and responsive glucose control as a children with diabetes can achieve better health outcomes with less daily burden.

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