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# THE AUTOIMMUNITY'S FOOTPRINT IN PEDIATRICS: TYPE 1 DIABETES MELLITUS

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**ABSTRACT**

Pediatric autoimmune illnesses are uncommon, and when they do arise, they can be difficult to diagnose and treat. Many children systemic autoimmune illnesses are distinct from those that affect adults, leading to confusion. A particular issue for doctors and researchers caring for youngsters who have been harmed by these maladies. When the body's own immune system malfunctions, autoimmune illnesses develop. The immune system targets and destroys healthy cells or piece of tissue There are over 80 different forms of autoimmune disorders. Specialist publications have cited them, but the exact cause of autoimmune diseases is yet unknown or unidentified. They could happen more frequently. Among people who are genetically predisposed to autoimmune conditions. An autoimmune disease is a condition in which the body's immune may harm one or more types of organs or tissues, implying that a person/health patient's may be jeopardized. At the age of one year and three months, patient S. A.-M. was diagnosed with type 1 diabetes mellitus. Diabetic ketoacidosis (pH 7.82; bicarbonate 6 mmol/L; base excess (BE) 21.0 mmol/L), glycemia 552 mg/dL, glycosuria, ketonuria, and HbA1c 12.0 percent were all present at the time of commencement. The patient's progress over the next eight years was positive, with an average HbA1c of 8% throughout that time. At the age of nine, the patient's yearly examination reveals Ig A type Ac anti-transglutaminase 155 U/mL (normal values 0-10 U/mL) and Ig A anti-gliadin antibody 30 U/mL (normal values 0-21 U/mL), prompting a duodenal biopsy. The histological findings revealed Marsh III celiac disease. As an autoimmune disease, type 1 diabetes is linked to other autoimmune disorders. Regular screening (annually) beginning the first year after diabetes development is required for early detection of related autoimmune disorders in the absence of clinical symptoms. All family members must be examined if there is a familial aggregation of autoimmune disorders. The management of type 1 diabetes and its complications in the short and long term is dependent on early detection and treatment of the autoimmune disorders that accompany it.

**Key words:** Autoimmunity's Footprint, Pediatrics, Type 1 Diabetes.

## INTRODUCTION

Pediatric autoimmune illnesses are uncommon, and when they do arise, they can be difficult to diagnose and treat [1]. Many children systemic autoimmune illnesses are distinct from those that affect adults, leading to confusion [2]. A particular issue for doctors and researchers caring for youngsters who have been harmed by these maladies [3]. When the body's own immune system malfunctions, autoimmune illnesses develop. The immune system targets and destroys healthy cells or piece of tissue There are over 80 different forms of autoimmune disorders. Specialist publications have cited them, but the exact cause of autoimmune diseases is yet unknown or unidentified. They could happen more frequently [4, 5]. Among people who are genetically predisposed to autoimmune conditions. An autoimmune disease is a condition in which the body's immune may harm one or more types of organs or tissues, implying that a person/health patient's may be jeopardized. At the moment, I'm dealing with a number of autoimmune disorders.

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At the same time the most common endocrine-metabolic disorder in adolescents and teenagers is type 1 diabetes mellitus [6, 7]. Its prevalence is increasing year after year. Regardless of color or nationality, every population. The autoimmune death of insulin-producing beta cells causes type 1 diabetes mellitus. This disease is essentially a complex genetic condition manifested by pancreatic cells, increasing occurrence in households with several children [8, 9]. Type 1 diabetes mellitus is a disease that affects family as well as other autoimmune disorders. This genetic tare's inheritance in the presence of insulin-producing cells (pancreatic B) are identified as a result of certain environmental factors non-self," and then to autoantibodies' destruction. Autoantibodies that are most commonly found in the islet cell is linked to diabetes mellitus. Insulin autoantibodies Glutamic acid decarboxylase (GAD65), a protein tyrosine phosphatase-related molecule. Zinc and/or IA-2 (ICA 512) and/or IA-2SS (phogrin). (ZnT 8) transporter (50). Thyroid autoimmunity is linked to antibodies to GAD and ZnT8A. Family members of children with diabetes are more likely to get diabetes themselves. Compared to the general population, antibodies and symptoms of some autoimmune illnesses. Studies published in specialized journals reveal that when the father has diabetes, the probability of the child developing diabetes is 5 to 6 percent when the mother has type 1 diabetes and 3 to 4% when the mother has type 2 diabetes possesses it [10, 11]. It is thought that a portion of the mother's chromosomal material or DNA is handed on to the offspring, it becomes inactive. As a result, the risk percentage difference is the youngster contracting the ailment in the event that a brother has type 1 diabetes, with a 5–6% chance of developing it; When the brother is present, though, the danger increases. In the case of monozygotic who both have type 1 diabetes, mellitus, the other person's probability of developing the disease is estimated to be around 40% [12].

**Case Presentation:**

At the age of one year and three months, patient S. A.-M. was diagnosed with type 1 diabetes mellitus. Diabetic ketoacidosis (pH 7.82; bicarbonate 6 mmol/L; base excess (BE) 21.0 mmol/L), glycemia 552 mg/dL, glycosuria, ketonuria, and HbA1c 12.0 percent were all present at the time of commencement. The patient's progress over the next eight years was positive, with an average HbA1c of 8% throughout that time. At the age of nine, the patient's yearly examination reveals Ig A type Ac anti-transglutaminase 155 U/mL (normal values 0-10 U/mL) and Ig A anti-gliadin antibody 30 U/mL (normal values 0-21 U/mL), prompting a duodenal biopsy. The histological findings revealed Marsh III celiac disease. A two-year gluten-free diet is started (partially observed by the patient), resulting in a poor glycemic balance (HbA1c 9-10 percent). The appearance of vitiligo areas, particularly on the neck and dorsum of the hands, was also noted at that time (at the age of 11), and thyroid function tests – TSH 9.8 UI/mL (normal values: 0,6–4,84 UI/mL), FT4 18.0 (normal values 13.5–22.0 mol/L), ATPO 496 UI/mL – revealed significant values for an autoimmune thyroiditis in the subclinical hypothyroid. Thus, within ten years of developing diabetes, the patient develops three autoimmune diseases: celiac disease, vitiligo, and thyroiditis. The father was diagnosed with type 1 diabetes mellitus two years before his daughter (at the age of 26), by associating the same autoimmune diseases as his daughter, namely vitiligo, celiac disease, fast onset thyroiditis, and unfavorable diabetes mellitus evolution, which led to the occurrence of diabetes mellitus.

**Discussion:**

Affecting a significant percentage of the population, autoimmune illnesses provide a broad subject for future scientific research into the discovery of ways for detecting, preventing, and possibly healing these disorders. Until now, an equally well-known fact has been that certain autoimmune diseases do not “appear” alone, but rather in conjunction with others; the most prevalent combination is type 1 diabetes mellitus and thyroid problems, followed by type 1 diabetes and celiac disease.

**Conclusion:**

As an autoimmune disease, type 1 diabetes is linked to other autoimmune disorders. Regular screening (annually) beginning the first year after diabetes development is required for early detection of related autoimmune disorders in the absence of clinical symptoms. All family members must be examined if there is a familial aggregation of autoimmune disorders. The management of type 1 diabetes and its complications in the short and long term is dependent on early detection and treatment of the autoimmune disorders that accompany it.

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