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# Evaluation Of Myocardial Affection in Children with Type 1 Diabetes Mellitus

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**Abstract**
**Background:** A metabolic condition known as diabetes mellitus (DM) is defined by an absolute or relative lack of insulin production, insulin action, or both. A risk factor for coronary heart disease (CHD) and other cardiovascular illnesses is persistent diabetes mellitus (CVD). The diagnosis and risk assessment of individuals suspected of having various CVD symptoms, such as chest discomfort and acute coronary syndrome, is done using cardiac markers.. **Aim of the study:** Look into myocardial affliction in kids with Type 1 diabetes. **Type of study:** cross-sectional comparison study. **Methods:** 26 controls and 50 paediatric type 1 DM patients were included in the present investigation. Complete history taking, clinical examinations, and thorough laboratory tests were performed on the patients.

**Keywords:** Type 1 DM, Cardiac affection .

## Introduction

A serious issue in terms of public health is diabetes mellitus (DM). The prevalence of type 1 diabetes mellitus (T1DM), which is rising at a rate of 3% annually, affects close to 65,000 children under the age of 15. In 2025, there will likely be 285 million cases of diabetes due to the rise in incidence and prevalence over the world [1].

Studying these variances may assist to clarify the pathogenetic elements of the illness that may influence these populations, since diabetes mellitus prevalence differs greatly across various communities throughout the globe [2].

Juvenile diabetes mellitus is a serious public health issue, as shown by the number of patients who have the condition and the growth in new cases [3].

Without any risk factors, uncomplicated diabetes mellitus may cause systolic and diastolic dysfunction, which, if left untreated, can progress to diabetic cardiomyopathy and heart failure [4, 5]. Therefore, early care of these high-risk infants depends critically on early diagnosis of preclinical cardiac disease in diabetic children.

Investigating myocardial affection in kids with Type 1 diabetes mellitus is the goal of the present investigation.

## Subjects and Methods

This cross-sectional research comprised 26 healthy kids as the control group in addition to 50 juvenile cases of type 1 DM from both genders who were recruited from the Endocrine, Diabetes, and Cardiology unit at Benha University Hospital.

Patients with chronic diseases (cardiovascular, gastrointestinal, respiratory, renal, rheumatologic, etc.), inflammatory diseases (coeliac disease, Hashimoto thyroiditis, Addison disease, etc.), autoimmune diseases (coeliac disease, Hashimoto thyroiditis, Addison disease), or refusal to participate were excluded from the study.

The children were exposed to a thorough history taking and thorough general examination after receiving written agreement from the legal guardians of the included children and approval from the institutional review board, Mansoura faculty of medicine.

## Results

Table (1) shows that there was statistically significant difference between the studied groups regarding height percentile ($p < 0.05$) The median (IQR) height percentile of the studied diabetic patients was significantly lower than that of the control group. There was statistically significant difference between the studied groups regarding weight percentile ($p < 0.05$). The median (IQR) weight percentile of the studied diabetic patients was significantly higher than that of the control group. There was high statistically significant difference between the studied groups regarding BMI ($p < 0.001$). 50% of the diabetic patients were normal weight and 12 % of them were overweight.

**Table (1)** Comparison between diabetics and control regarding demographic characters

| Variable | | Diabetics N.=50 N. % | Control N.=26 N. % | Z Mann Whitney= | P value |
|---|---|---|---|---|---|
| **Age (years) Median (IQR)** | | 11 (9-14.25) | 11 (10-14) | 1.68 | .09 |
| **Sex** | Male | 17 34.0% | 13 50.0% | 1.833 | .176 |
| | Female | 33 66.0% | 13 50.0% | | |
| **Exercise** | Gymnastics | 1 2.0% | 0 0% | 1.06 | .586 |
| | No | 49 98.0% | 26 100.0% | | |
| **Height percentile Median (IQR)** | | 50 33-81 | 80 59-84.25 | 2.32 | **.02(S)** |
| **Weight percentile Median (IQR)** | | 73.8 42.7-86.6 | 55 50-65 | 2.22 | **.02(S)** |
| **BMI** | Underweight | 19 38.0% | 26 100.0% | **Chi square test =** 27.22 | **<.001 (HS)** |
| | Normal weight | 25 50.0% | 0 0% | | |
| | Overweight | 6 12.0% | 0 0% | | |

**Discussion**

The goal of the present investigation was to learn more about myocardial affiance in kids with Type 1 diabetes.

50 T1DM patients and 26 healthy kids served as the control group in the present investigation. In the present research, the control group's median (interquartile range) age was 11, whereas the cases group's was 11, with a significant proportion of women in the cases group. Age and gender did not vary statistically significantly from one another.

The outcomes of other investigations are not consistent. Others have discovered that the incidence is higher in boys [7] or in girls [8, 9] while yet others have shown no difference between the genders in occurrence [6].

The Egyptian research by Hassan et al. (2019) found that 20 patients (66.6 percent) were male and 10 cases were female (33.3 percent ). This indicates that men have the upper hand when it comes to this predominance [10].

There was no difference in the incidence between the sexes in the research by Stipancic et al. [11].

Regarding the demographic characteristics and vital signs of the examined excellent and poor diabetes control patients, there were no statistically significant differences in the present research.

**Conclusions:**

To study, more instances are required.

**Conflict of interest**

The authors have not revealed any conflicts of interest.

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