# WHAT HAS CHANGED IN TYPE 1 DIABETES MELLITUS CASES IN THE LAST EIGHT YEARS? A SINGLE CENTER EXPERIENCE

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## OBJECTIVES

Type 1 diabetes mellitus (DM) is an autoimmune disease caused by the destruction of pancreatic beta cells. The frequency of Type 1 DM is increasing, and the highest incidence rate is in children under 5 years of age. It is estimated that children under the age of five will develop approximately 70% of the cases under the age of 15, with an increased incidence.
In our study, we aimed to evaluate the demographic, clinical and laboratory features of Type 1 DM patients diagnosed in our clinic during the last eight years.

## MATERIALS AND METHODS

The study included 323 Type 1 DM patients aged 1-18 years, diagnosed and followed in our pediatric endocrinology outpatient clinic at our Erciyes University School of Medicine. The anthropometric measurements, physical examination and laboratory findings of the patients at the time of the diagnosis were evaluated. The results were compared according to the gender, age and clinical presentation of the patients.

## RESULTS

Graphic 1: Distribution of cases by age and gender of diagnosis
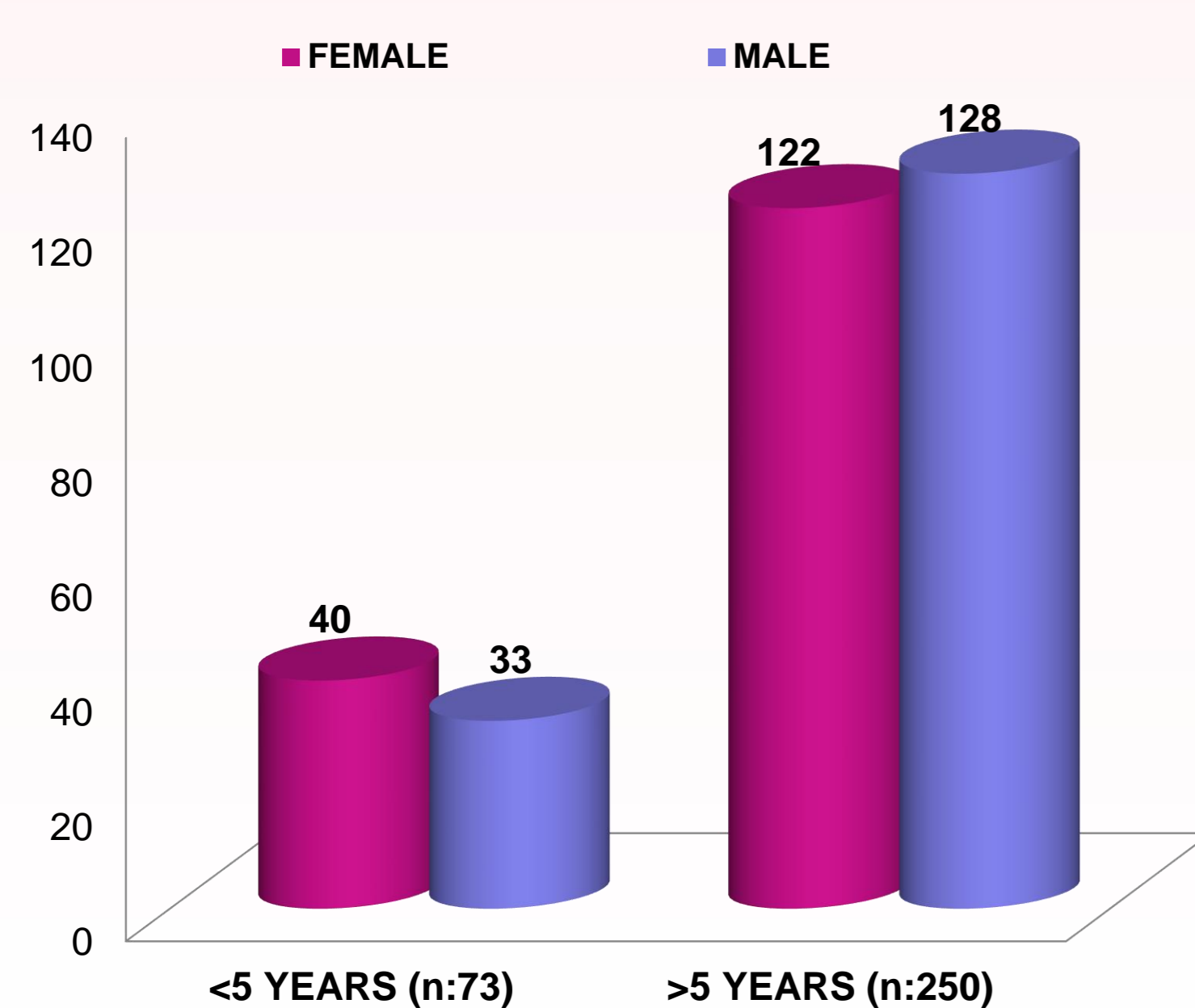


Graphic 2: Distribution of cases according to arrival clinic
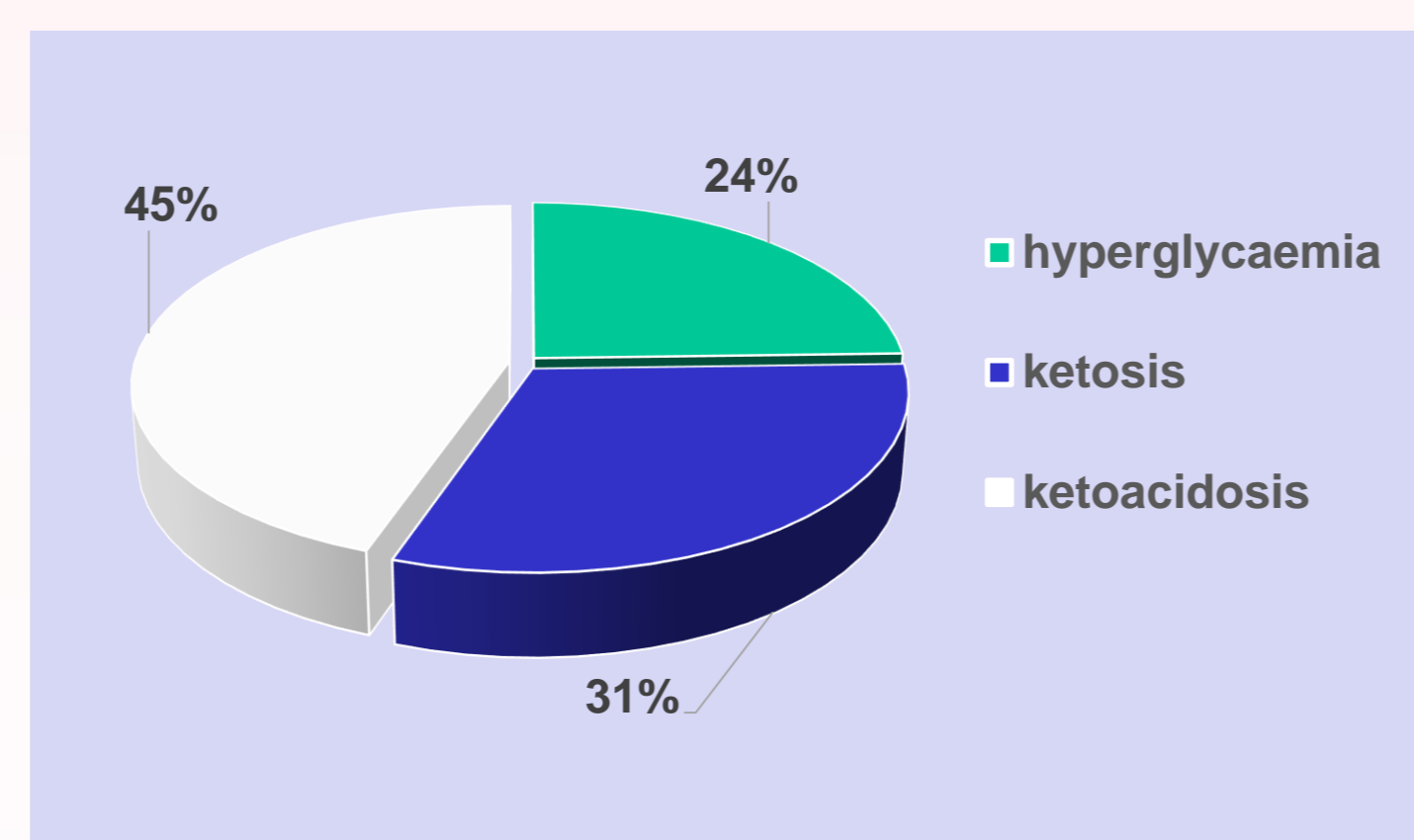


The birth weight was in the normal range according to the gestational week in 89.8% of the cases.

In the 42.4% of the cases, there were a diabetes history in the family.

Thyroid autoantibodies were positive in 10% and anti-endomysial antibody was positive in 8.5% of the patients.

Table 1: Distribution of cases according to degree of acidosis

| | No acidosis (n:151) | Mild acidosis (n:45) | Moderate acidosis (n:18) | Severe acidosis (n:50) | p value |
|---|---|---|---|---|---|
| Gestational week (week) | 37.7 ± 1.58 | 38.2 ± 0.97 | 37.8 ± 0.94 | 37.9 ± 0.94 | 0.677 |
| Birth weight (gram) | 3288 ± 632 | 3266 ± 591 | 3306 ± 552 | 3184 ± 474 | 0.649 |
| Age at diagnosis (year) | 9.32 ± 3.79 | 7.39 ± 3.86 | 8.73 ± 5.48 | 7.94 ± 4.48 | 0.027 |
| Height SDS at diagnosis | 0.12 ± 1.08 | 0.60 ± 1.09 | 0.13 ± 0.84 | 0.08 ± 1.12 | 0.305 |
| Weight SDS at diagnosis | 0.024 ± 1.05 | 0.13 ± 1.18 | -0.35 ± 1.46 | 0.07 ± 1.20 | 0.570 |
| BMI at diagnosis (kg/m2) | 17.85 ± 3.31 | 16.57 ± 2.59 | 16.66 ± 2.09 | 17.63 ± 3.11 | 0.367 |
| BMI SDS at diagnosis | -0.02 ± 1.21 | -0.29 ± 1.33 | -0.37 ± 1.34 | 0.13 ± 1.09 | 0.484 |
| HbA1C at diagnosis (%) | 11.13 ± 2.37 | 11.37 ± 2.00 | 12.15 ± 2.57 | 11.68 ± 2.02 | 0.142 |
| C peptide at diagnosis (ng/ml) | 0.698 ± 0.54 | 0.308 ± 0.20 | 0.432 ± 0.33 | 0.287 ± 0.24 | <0.001 |

Table 2: Distribution of cases diagnosed < 5 years according to acidosis degree

| | No acidosis (n:24) | Mild acidosis (n:13) | Moderate acidosis (n:7) | Severe acidosis (n:15) | p value |
|---|---|---|---|---|---|
| Gestational week (week) | 37.3 ± 1.69 | 38.3 ± 1.11 | 38.0 ± 0 | 38.0 ± 0.94 | 0.335 |
| Birth weight (gram) | 3340 ± 803 | 3521 ± 324 | 3406 ± 506 | 3256 ±302 | 0.535 |
| Age at diagnosis (year) | 3.76 ± 0.81 | 3.04 ± 1.24 | 2.71 ± 1.16 | 2.35 ± 0.97 | 0.002 |
| Height SDS at diagnosis | 0.10 ± 0.72 | 0.48 ± 0.84 | 0.36 ± 0.62 | 0.41 ± 1.22 | 0.433 |
| Weight SDS at diagnosis | 0.06 ± 0.90 | 0.13 ± 0.94 | 0.61 ± 0.75 | 0.61 ± 0.75 | 0.578 |
| BMI at diagnosis (kg/m2) | 15.62 ± 1.53 | 15.45 ± 1.39 | 16.9 ± 1.78 | 16.75 ± 1.78 | 0.364 |
| BMI SDS at diagnosis | -0.09 ± 1.06 | -0.30 ± 1.28 | 0.50 ± 1.45 | 0.48 ± 0.90 | 0.591 |
| HbA1C at diagnosis (%) | 9.90 ± 1.85 | 10.53 ± 1.08 | 11.05 ± 2.02 | 10.25 ± 2.14 | 0.302 |
| C peptide at diagnosis (ng/ml) | 0.706 ± 0.639 | 0.220 ± 0.158 | 0.174 ± 0.84 | 0.232 ± 0.291 | 0.001 |

Table 3: Distribution of cases diagnosed > 5 years according to acidosis degree

| | No acidosis (n:127) | Mild acidosis (n:32) | Moderate acidosis (n:11) | Severe acidosis (n:35) | p value |
|---|---|---|---|---|---|
| Gestational week (week) | 37.8 ± 1.55 | 38.1 ± 0.91 | 37.7 ± 1.28 | 37.9 ± 0.96 | 0.870 |
| Birth weight (gram) | 3276 ± 591 | 3138 ± 658 | 3231 ± 607 | 3143 ±552 | 0.729 |
| Age at diagnosis (year) | 10.37 ± 3.15 | 9.16 ± 3.06 | 12.57 ± 2.93 | 10.33 ± 2.98 | 0.031 |
| Height SDS at diagnosis | 0.12 ± 1.14 | 0.64 ± 1.19 | -0.05 ± 1.0 | -0.08 ± 1.07 | 0.240 |
| Weight SDS at diagnosis | 0.01 ± 1.09 | 0.13 ± 1.28 | -0.85 ± 0.77 | -0.18 ± 1.30 | 0.228 |
| BMI at diagnosis (kg/m2) | 18.32 ± 3.39 | 17.0 ± 2.83 | 16.45 ± 2.07 | 17.96 ± 3.59 | 0.361 |
| BMI SDS at diagnosis | -0.004 ± 1.25 | -0.28 ± 1.38 | -1.13 ± 0.63 | 0.03 ± 1.15 | 0.082 |
| HbA1C at diagnosis (%) | 11.36 ± 2.39 | 11.71 ± 2.20 | 12.84 ± 2.73 | 12.29 ± 1.65 | 0.065 |
| C peptide at diagnosis (ng/ml) | 0.697 ± 0.524 | 0.345 ± 0.211 | 0.597 ± 0.324 | 0.311 ± 0.223 | <0.001 |

## CONCLUSION

Similar to other autoimmune diseases, it is noteworthy that the diagnosis of diabetes has increased and the age of diagnosis has shifted to the earlier. In accordance with the literature, the frequency of diabetic ketoacidosis in our study was found to be higher as the age decreased.

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