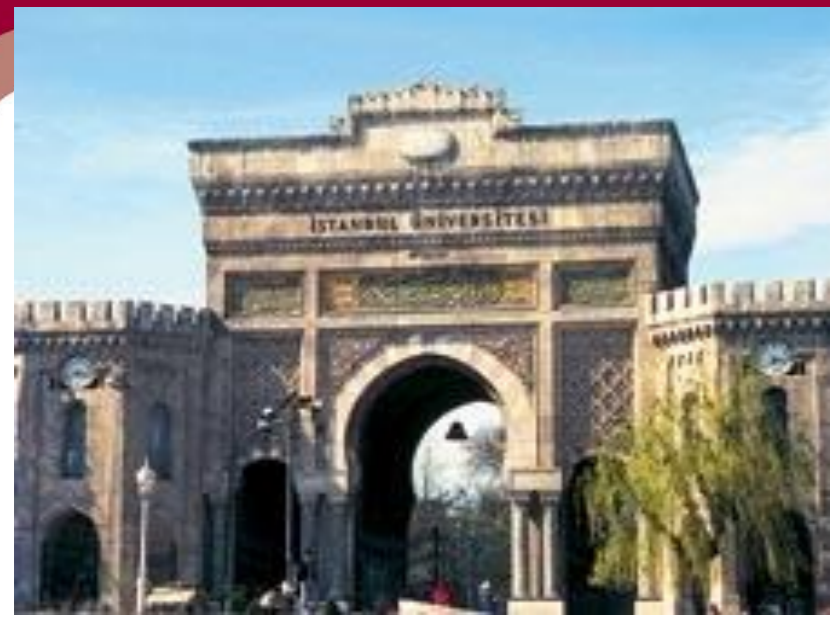


Clinical and Laboratory Characteristics of Children and Adolescents with Type 1 Diabetes Mellitus



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Background and Aim

Prevalence of type 1 Diabetes Mellitus is increasing worldwide and it is associated with multiple factors.

We aimed to evaluate the clinical and laboratory characteristics of patients with type 1 DM.

Patients and Methods

Clinical records of 184 patients with diabetes (0-18 years) admitted between January 2010 and January 2014 were analyzed retrospectively. Age and season at admission, type of admission, anthropometric measurements, pubertal status, laboratory tests including, blood glucose, electrolytes, gases, HbA1c, insulin, c-peptide levels, thyroid function tests, lipid profile, thyroid and pancreas autoantibodies were recorded.

Results

Among the patients 53.9% (n=99) were girls (fig 1). Mean chronological age at admission was 8.28 ± 4.28 years. Short stature was observed in 3.2%, 1.6% were overweight. More patients were prepubertal (58.1%) ($p=0.019$) (fig 2). Family history was positive for type 1 DM and type 2 DM in 9,78% and 44.6% of the patients. History for an infectious disease 3 months prior the onset of diabetes was observed in 20.4%. Type 1DM was most frequently diagnosed in fall (30.4%) and winter (30.4%), ($p<0.05$) (fig 3). In both genders age distribution showed peak intervals between 8-12 years (fig 4). Age distribution didn't differ between genders. Presentation was with diabetic ketoacidosis (DKA) in 37.5% (n=69) (fig 5). There was no difference in gender distribution, chronological age and anthropometric measurements between the patients presenting with and without ketasidosis (fig 6, table 1). Incidence of being younger than 5 years was not different in the patients with and without DKA (table 2).

Fasting c-peptide level was lower in the patients with DKA ($p=0.019$). Subclinical hypothyroidism was observed in 2.2% and 7.3% of the patients with and without DKA respectively. None of the patients had overt hypothyroidism. Hashimoto thyroiditis was determined in 10.3%. In 71.1% of the patients at least one antibody was positive among 3 (anti-GAD, ICA, AIA) pancreas antibodies.

Conclusion

Incidence of type 1 DM seems increased in relatively cold weather. Although there is no mechanistic relationship, family history for type 2 DM is high, that should be further investigated. Presentation with DKA is high, that makes relevant recognizing symptoms early.

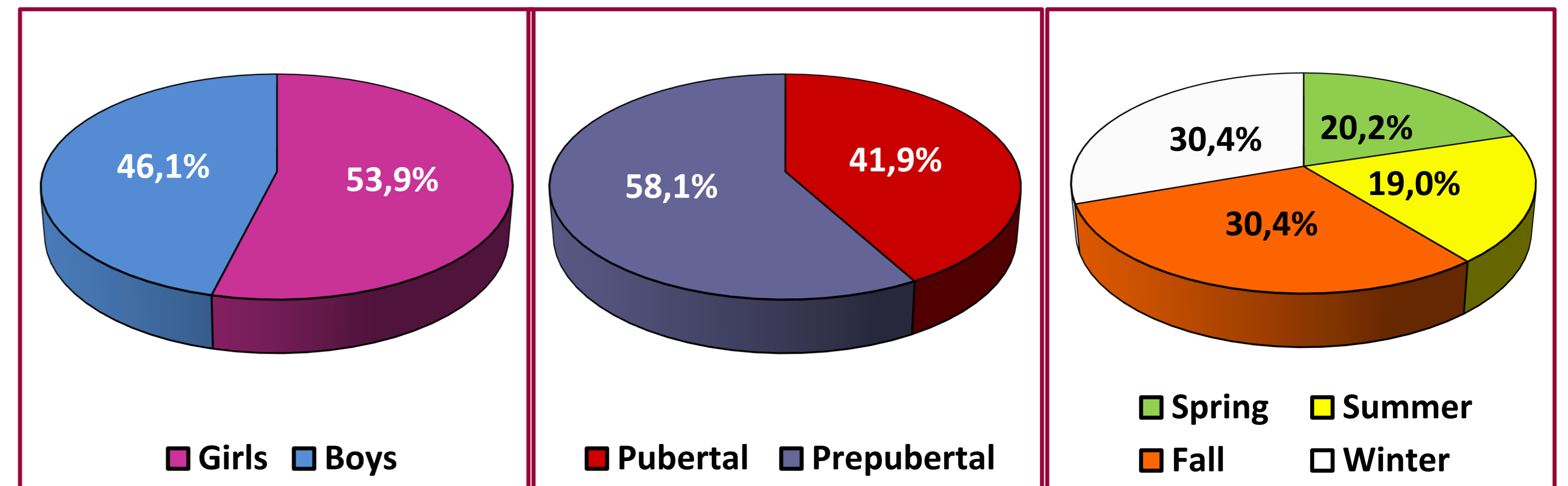


Figure 1. Gender distribution of the patients

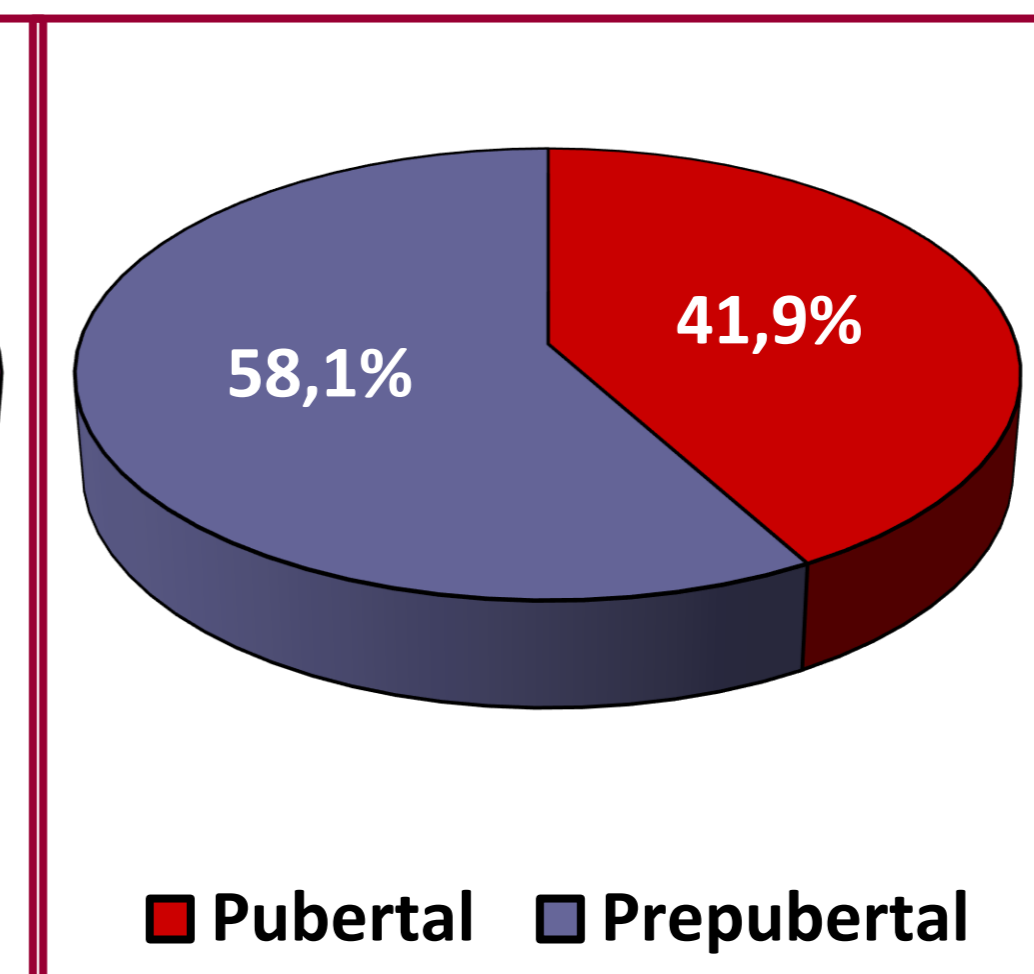


Figure 2. Pubertal status of the patients

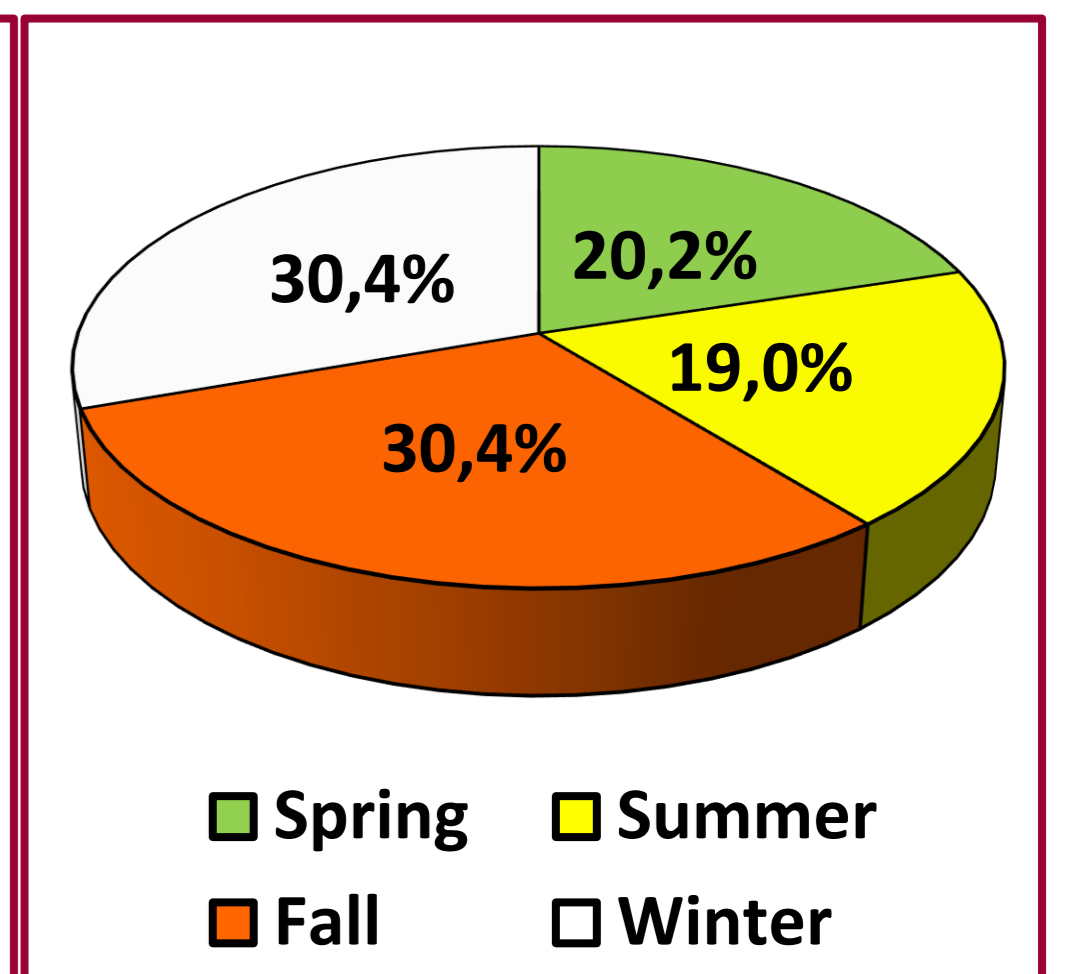


Figure 3. Season when type 1 DM was diagnosed

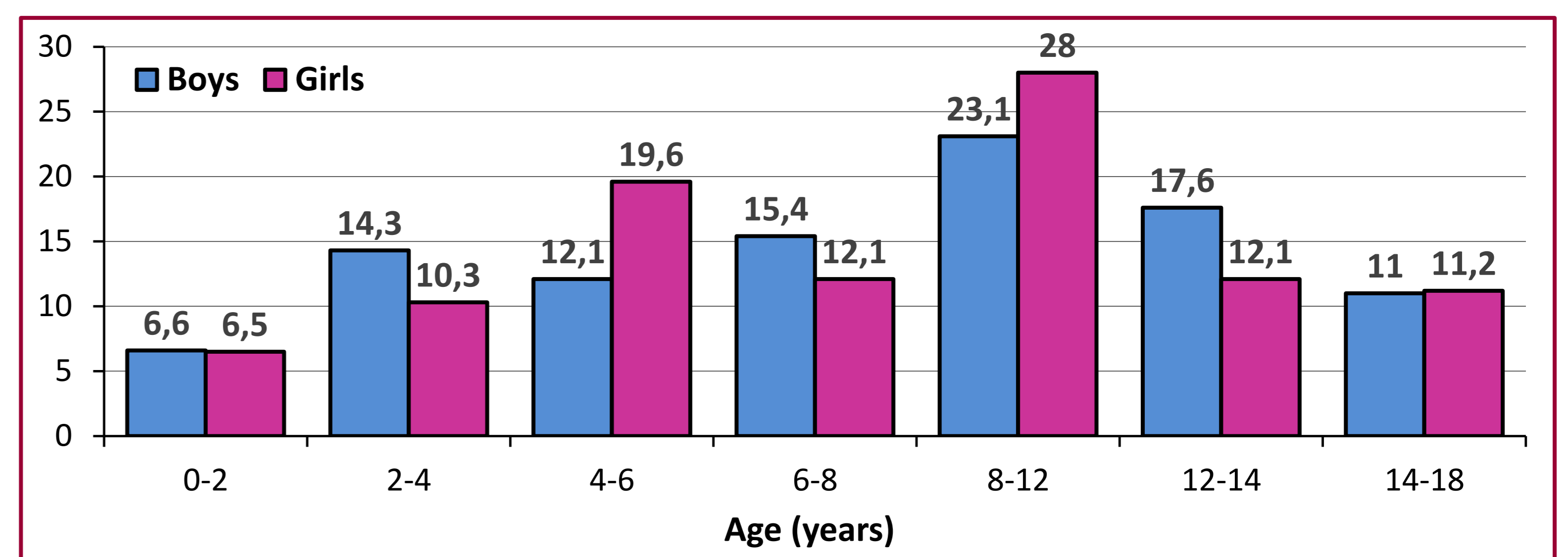


Figure 4. Age distribution of the girls and boys presenting with type 1 DM. Age distribution didn't differ between genders

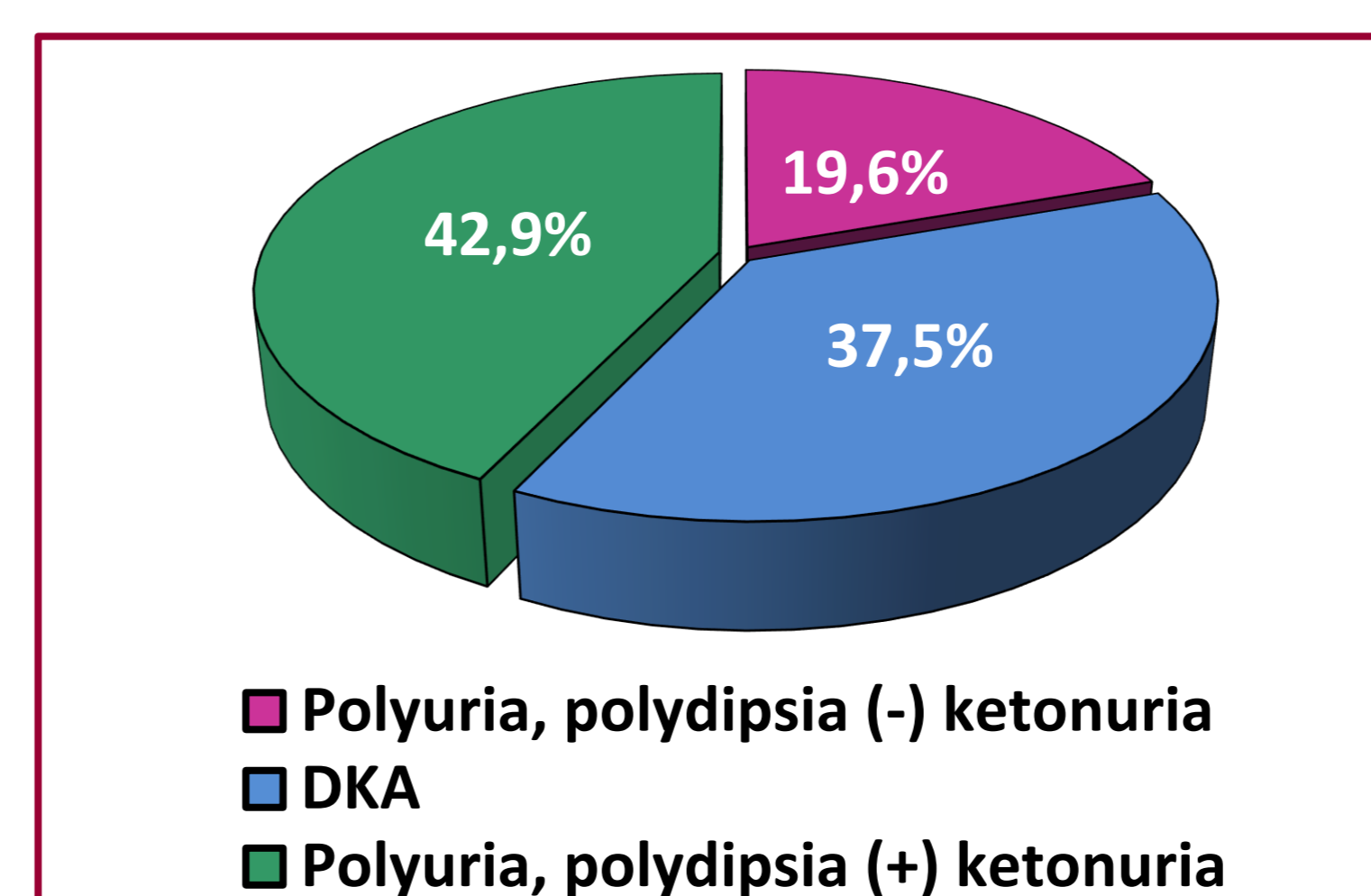


Figure 5. Presentation types of type 1 DM

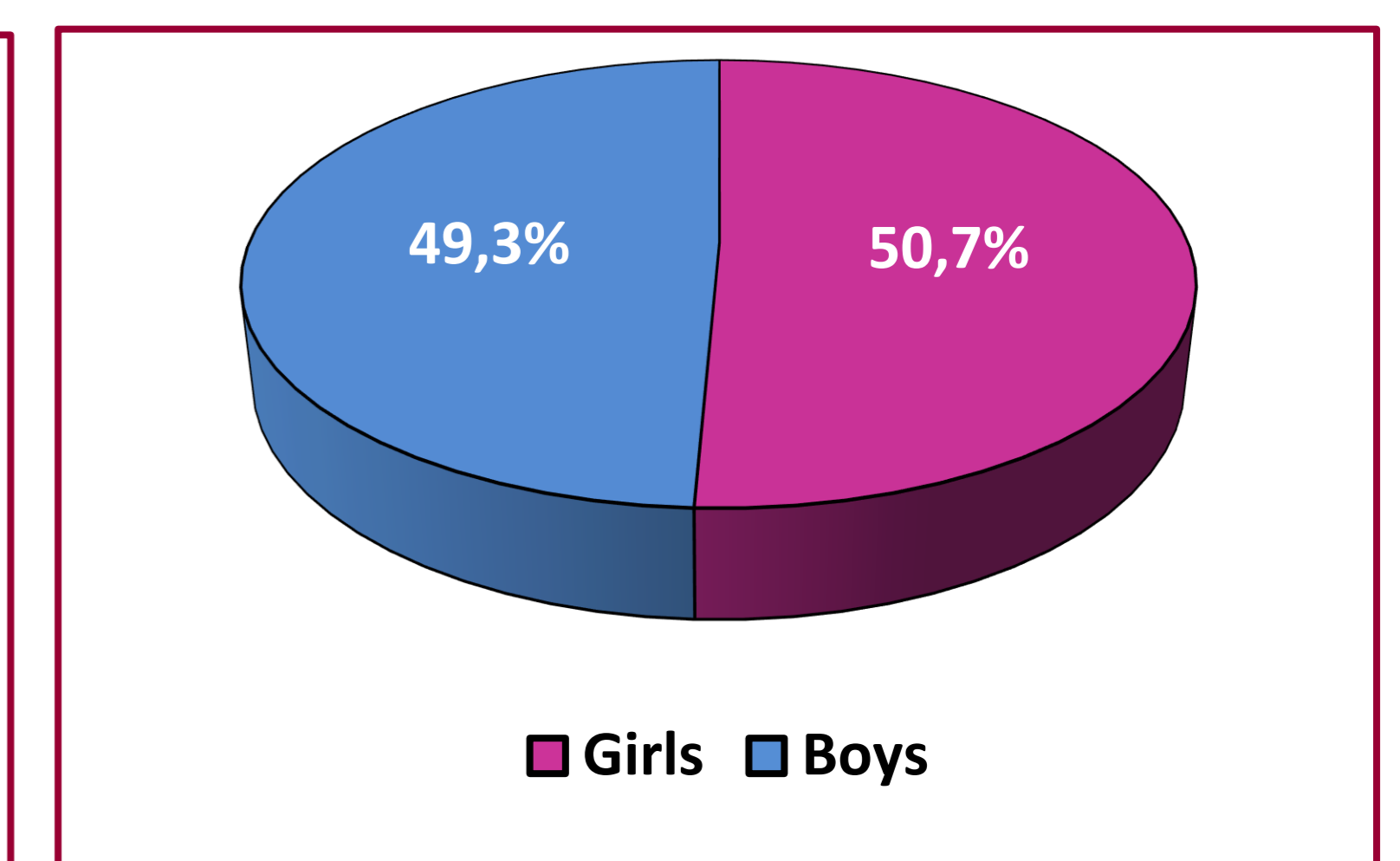


Figure 6. Gender distribution of the patients presented with DKA

Table 1. Age and anthropometric measurements of the patients presenting with and with out KTA

	DKA (-) Mean \pm SD (n=115)	DKA (+) Mean \pm SD (n=69)	p value
Chronological age (years)	8.69 \pm 4.41	7.58 \pm 3.99	0.090
Height SDS	0.11 \pm 1.19	0.38 \pm 1.25	0.14
Weight SDS	-0.07 \pm 1.32	0.21 \pm 1.07	0.193
BMI (kg/m ²)	17.37 \pm 3.1	17.11 \pm 2.74	0.55
BMI SDS	-0.14 \pm 1.25	0.00 \pm 1.19	0.306

There was no difference in chronological age and anthropometric measurements between patients presenting with and with out ketoacidosis

Table 2. Diagnosis with and with out DKA in the patients younger and older than 5 years

DKA	< 5 years	> 5 years	p value
(+)	20 (29 %)	49 (71%)	0.713
(-)	31 (28.2%)	84 (71.8%)	

Incidence of being younger than 5 years was not different in the patients with and with out DKA

