

Background

Type 1 diabetes mellitus (T1DM) is the second most frequent chronic disease in childhood and adolescence. Chronic hyperglycemia is responsible for numerous long term complications, not only microvascular (retinopathy, nephropathy and neuropathy), but also macrovascular (ischemic cardiopathy, cerebrovascular disease and peripheral vascular disease). On the other hand, the T1DM immune modification is responsible for an increased incidence of other autoimmune diseases.

Objectives

The aim of this study is to establish the prevalence of overweight and obesity in a group of paediatric patients with T1DM and to determine the effects on the lipoprotein profile and metabolic control.

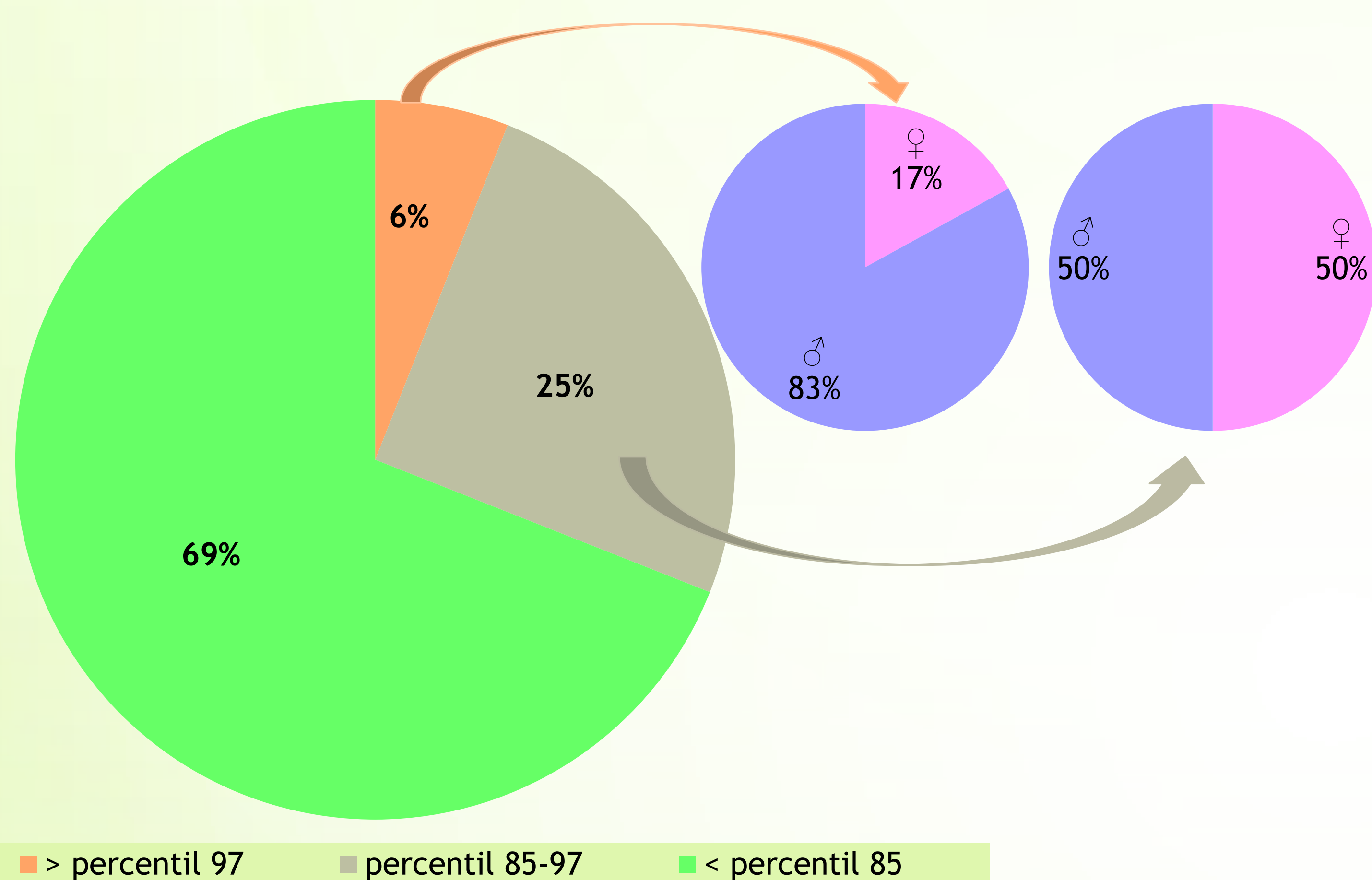
Methods

A group of 104 patients with T1DM, and on intensive insulin therapy was studied. Weight, height, body mass index (BMI), blood pressure (BP), glycosylated haemoglobin (HbA1c), total cholesterol (TC), HDL-cholesterol (HDL-c), LDL-cholesterol (LDL-c) and triglycerides (TG) were measured. Obesity was defined by BMI percentile above 97 and overweight by BMI percentile between 85 and 97.

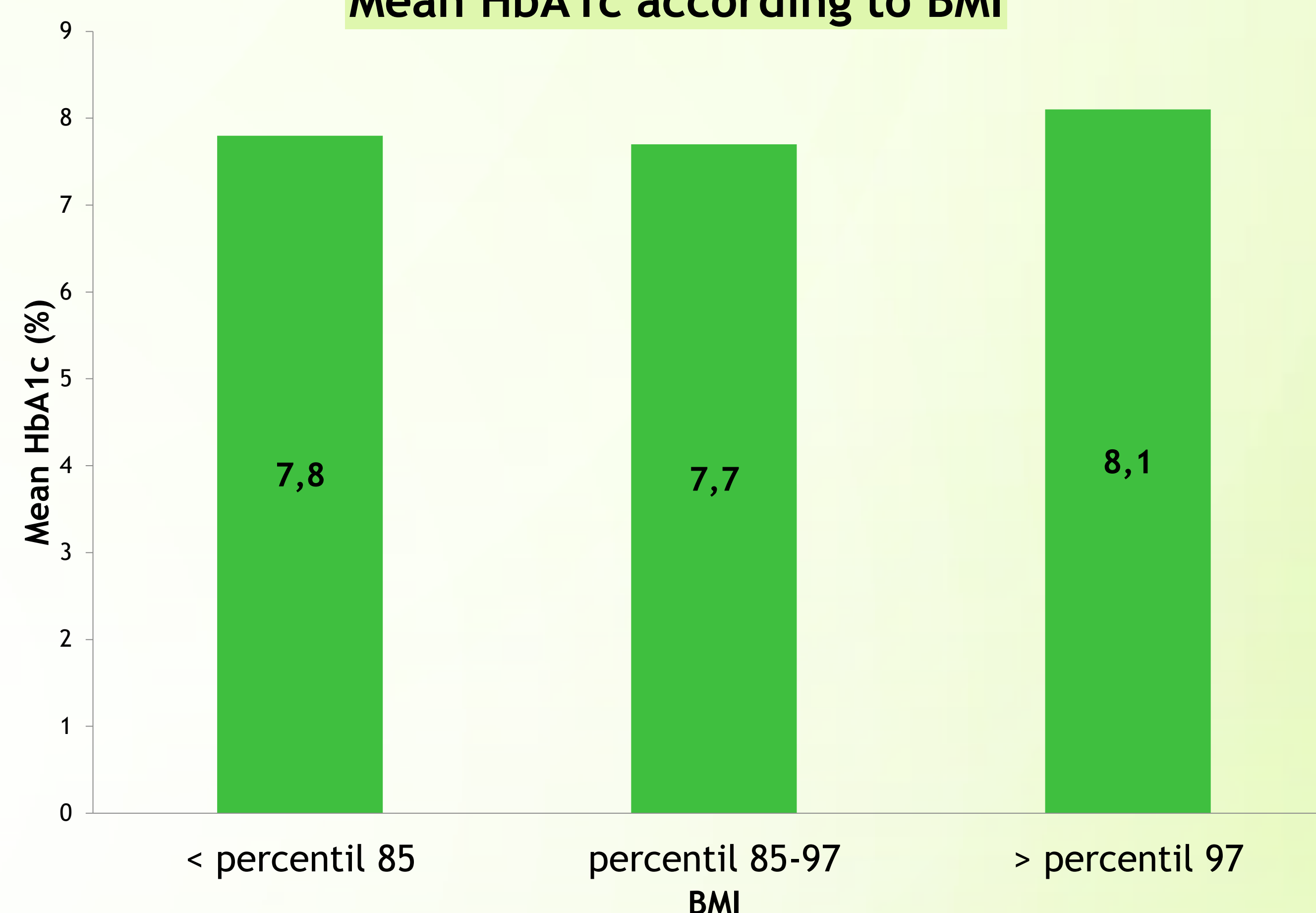
Results

Our population consisted of 104 T1DM patients (47.1% female, 52.9% male) with a median age of 12.5 years (3.3-17.9 years). The prevalence of overweight was 13.5% (n=26), 50% male, and obesity was 4.8% (n=5), 83% male. The mean HbA1c in DMT1 patients with overweight (n=26) and obesity (n=5) was 7,7% and 8,1%, respectively. There were no significant differences in HbA1c control between obese patients and the rest of the sample. Hypertension was only observed in those patients with overweight (n=2) and obesity (n=1). The BP adjusted for age and sex was above 90th percentile in 2,88% of the cases, and 0,96% had a systolic BP above 130 mmHg and/or diastolic BP above 85 mmHg. 12.5% (n=13) of our T1DM population had dyslipidemia. 16% of 31 patients with overweight or obesity had dyslipidemia. An HDL-c below 40 mg/dl was seen in 0,96%, and 4,8% had TG above 150 mg/dl.

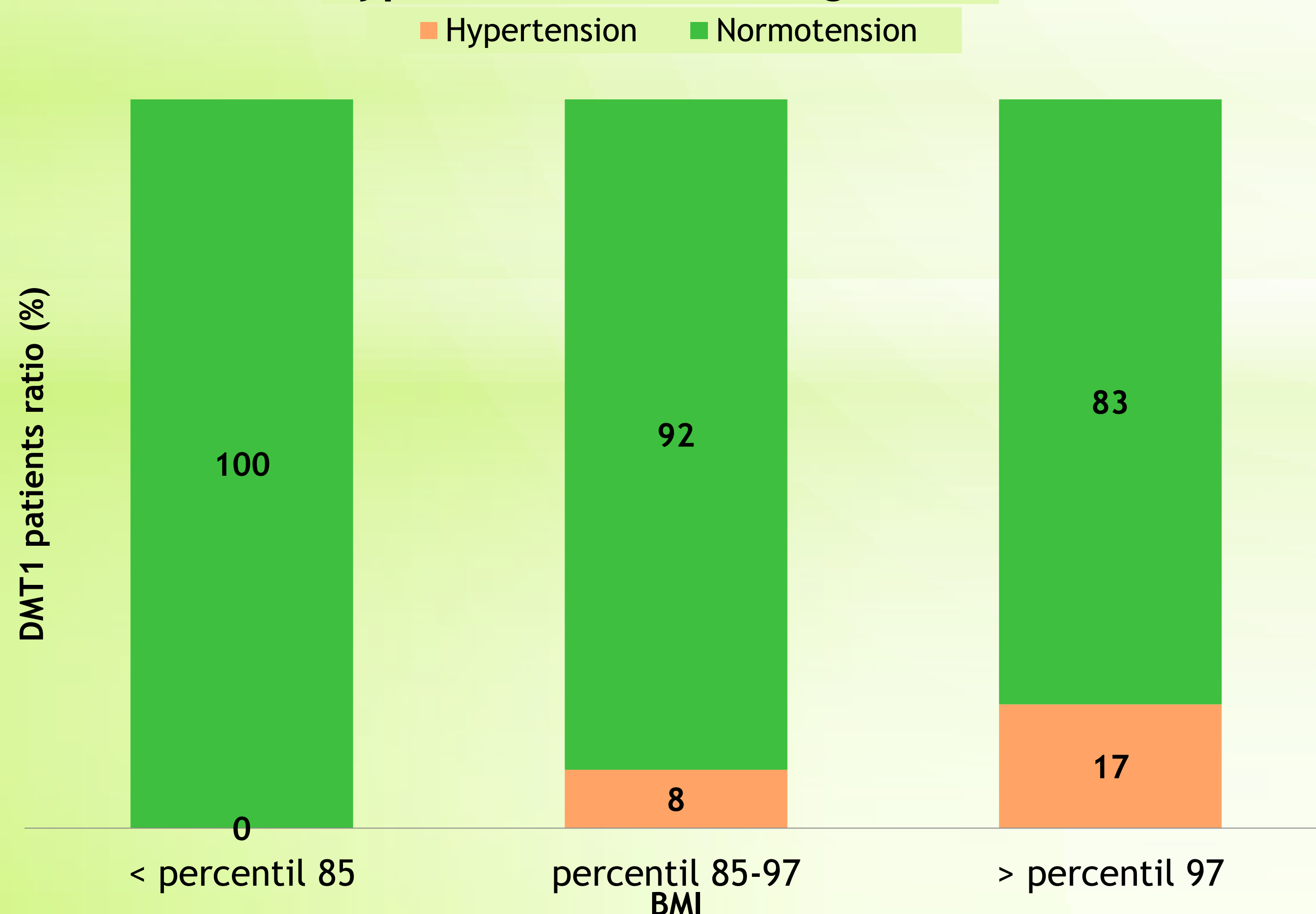
Overweight and obesity (BMI)



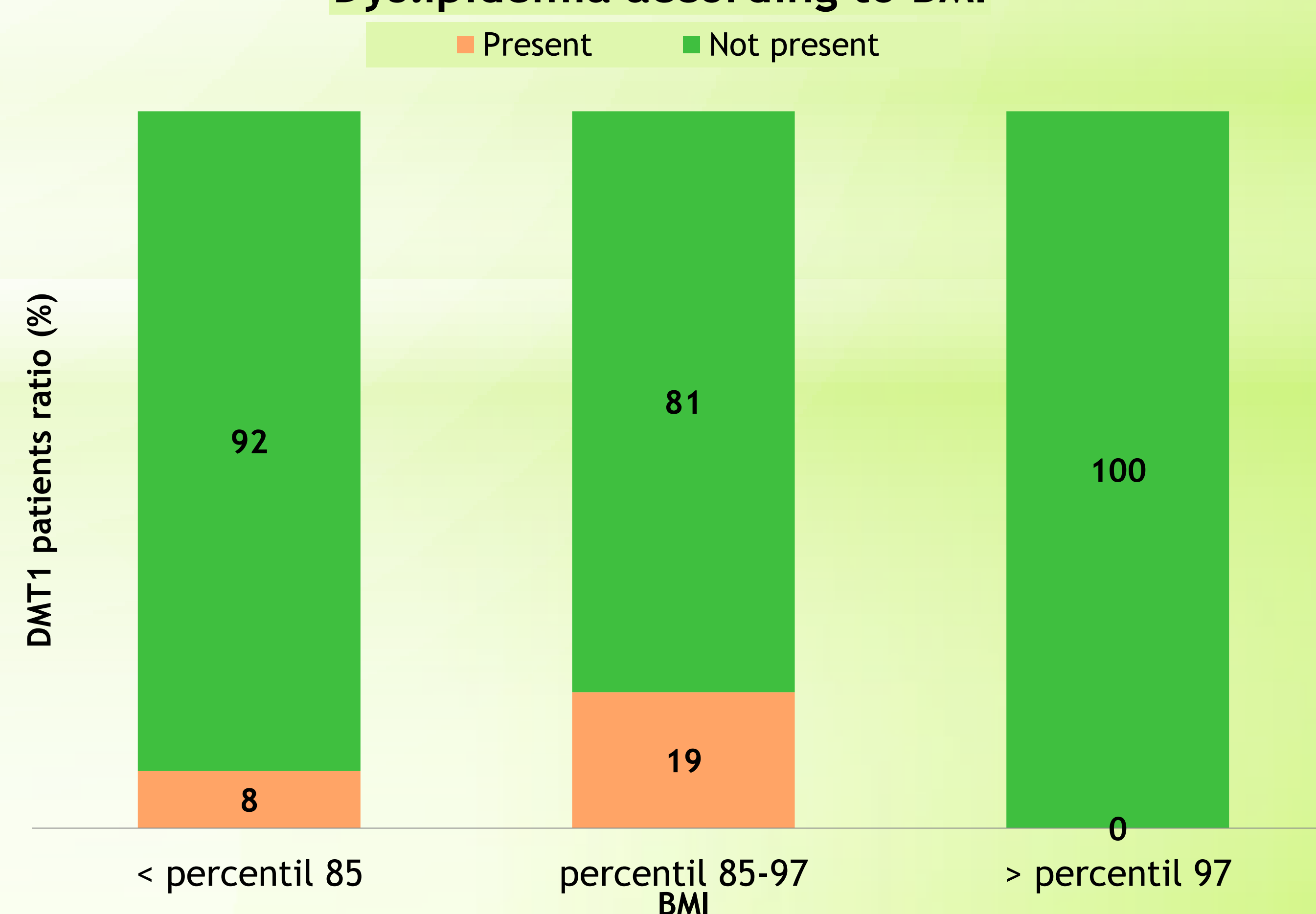
Mean HbA1c according to BMI



Hypertension according to BMI



Dyslipidemia according to BMI



Conclusion

Overweight and obesity are common in paediatric patients with T1DM. Hypertension was more commonly seen in patients with overweight/obesity. There were no significant differences in HbA1c nor lipoprotein profile of cardiovascular risk between patients with overweight-obesity and the rest.

References

1. Hanas R., Diabetes Tipo 1 em Crianças, Adolescentes e Jovens Adultos. 3ª edição. Lisboa: Lidel 2007, 2. International Society for Pediatric and Adolescent Diabetes (ISPAD) Clinical Practice Consensus Guidelines 2009, 3. Şimsek D., Aycan Z., et al., Diabetes Care, Glycemic Control, Complications, and Concomitant Autoimmune Diseases in Children with Type 1 Diabetes in Turkey: A Multicenter Study, J Clin Res Pediatr Endocrinol 2013;5(1):20-26, DO I: 10.4274/Jcrpe.893, 4. Arrieta M., Trapote R., et al., La función renal y la presión arterial en la diabetes mellitus tipo 1, An Pediatr (Barc). 2013;78(2):104-108, 5. Yeste D. et Carrascosa A., Complicaciones metabólicas de la obesidad infantil, An Pediatr (Barc). 2011;75(2):135.e1-135.e9, 6. Cabezas O. et Oliver J., Diabetes mellitus en niños y adolescentes: complicaciones crónicas y enfermedades asociadas, An Pediatr (Barc). 2007;66(3):282-9, 7. Perfil lipoproteico de riesgo en pacientes con diabetes mellitus tipo 1, An Pediatr (Barc). 2013;79(5):335-341, 8. Atance E., Muiña P, et al., Prevalencia de obesidad y de factores de riesgo cardiovascular en una población de pacientes pediátricos con diabetes tipo 1, An Pediatr (Barc). 2013;78(6):382-388.