

Introduction

Aim of the study: was to estimate the obesity and metabolic syndrome (MS) rates according to the age and the thyroid function of the residents of Belarus.

Materials and Methods

We have examined 894 subjects aged 18-44 years (82,2% female) living in Stolin district, Brest region of Belarus. The endocrinological examination with anthropometric measurements, the thyroid ultrasound, thyroid function tests and blood biochemistry were performed. The central obesity was diagnosed according to the IDF criteria (Waist circumference > Norm); the metabolic syndrome (MS) was diagnosed as central obesity plus 2 or more the IDF factors.

Results

Waist circumference (WC) exceeded the IDF cut-off levels in 68,1% of the studied population (71,8% female and 50,9% male). The MS was diagnosed in 29% of the whole population: only in 5% of subjects at the age of 18-19, in 19% of 20-29 years old, in 32% of aged 30-39 years and in 48% of those aged 40-44 years.

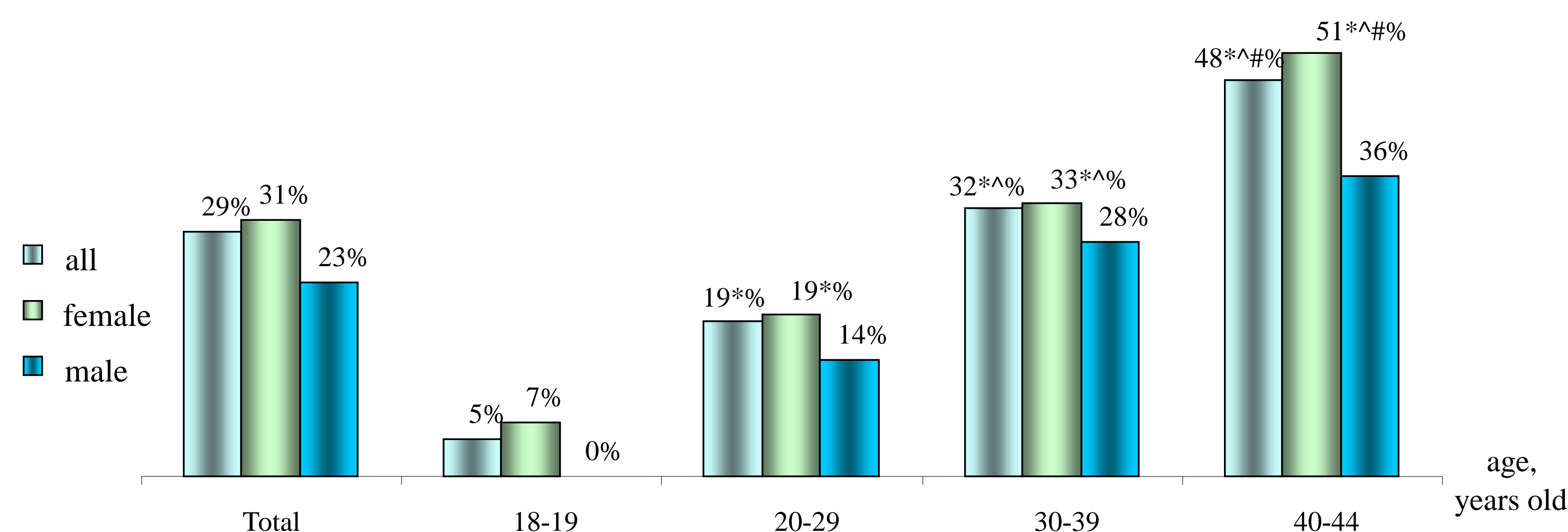


Fig. 1 — The prevalence (%) of MS in total group of individuals from Brest region (associated with age and gender)
* — significant differ from group 18-19 years old, $p < 0,001$;
^ — significant differ from group 20-29 years old, $p < 0,001$;
— significant differ from group 30-39 years old, $p < 0,001$

87% of the studied people of Stolin population were euthyroid (TSH 0,3-4,0 mIU/l). Hyperthyroidism (TSH < 0,3 mIU/l) and hypothyroidism (TSH > 4,0 mIU/l) was found in 2% and 11% of subjects, respectively.

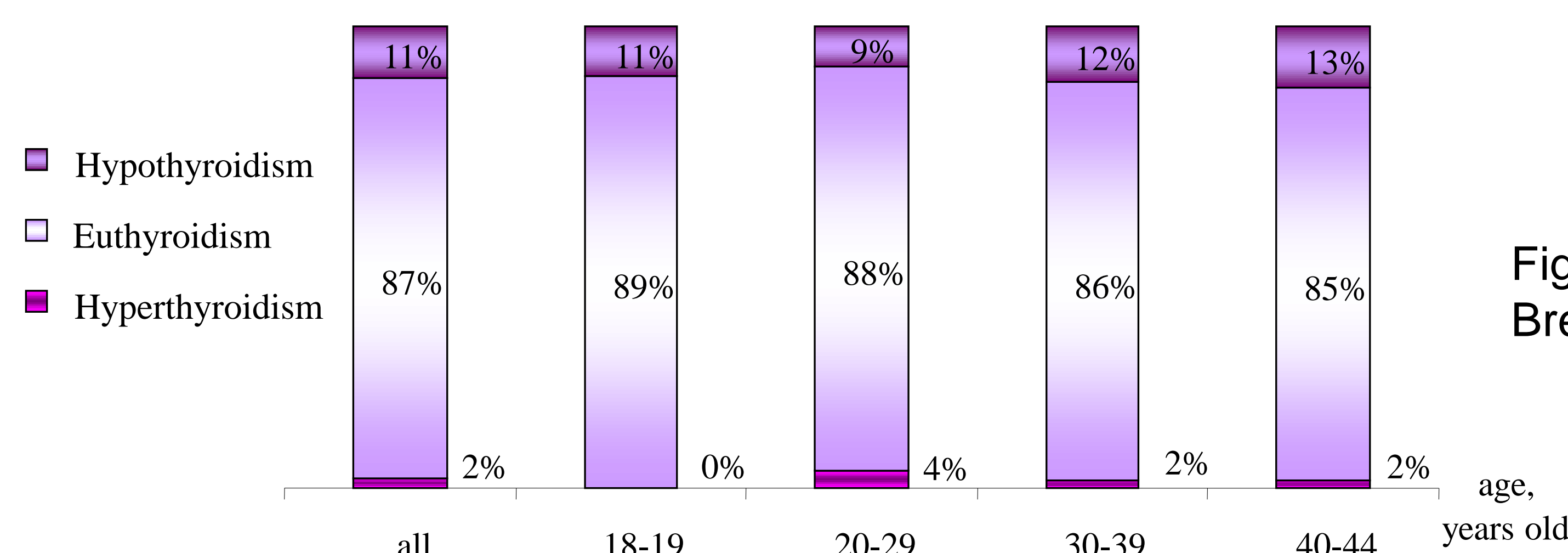


Fig. 2 — The distribution of TSH-levels by individuals from Brest region (in different age-groups)

The frequency of MS in subclinical hypothyroidism was significantly higher than in the group with normal thyroid function (39% vs.27%, $P < 0,001$). By young participants (20-29 y.o.), the proportion of those having MS was twice higher in subclinical hypothyroidism compared to euthyroidism (33% vs. 15%, respectively). Such a tendency was decreasing with aging.

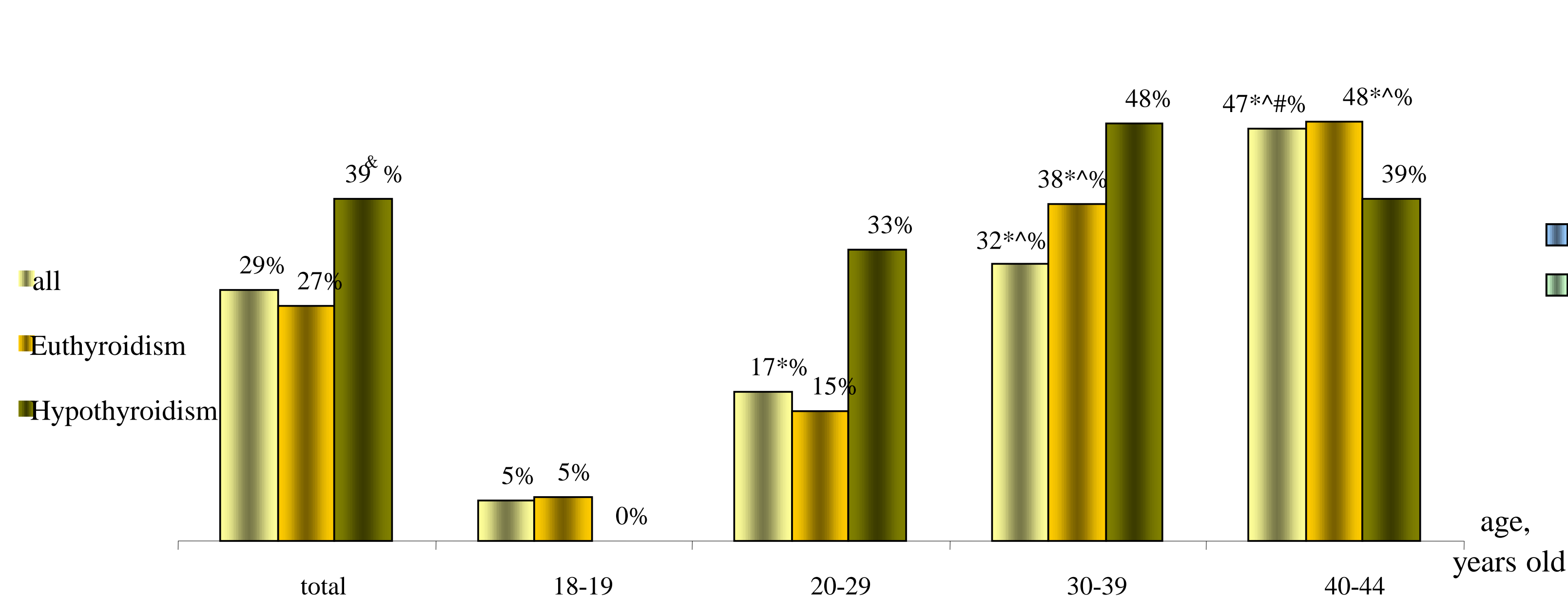


Fig. 3 — Influence of hypothyroidism to a prevalence of MS (in different age-groups of individuals from Brest region)
* — significant differ from group 18-19 years old, $p < 0,001$;
^ — significant differ from group 20-29 years old, $p < 0,001$;
— significant differ from group 30-39 years old, $p < 0,001$

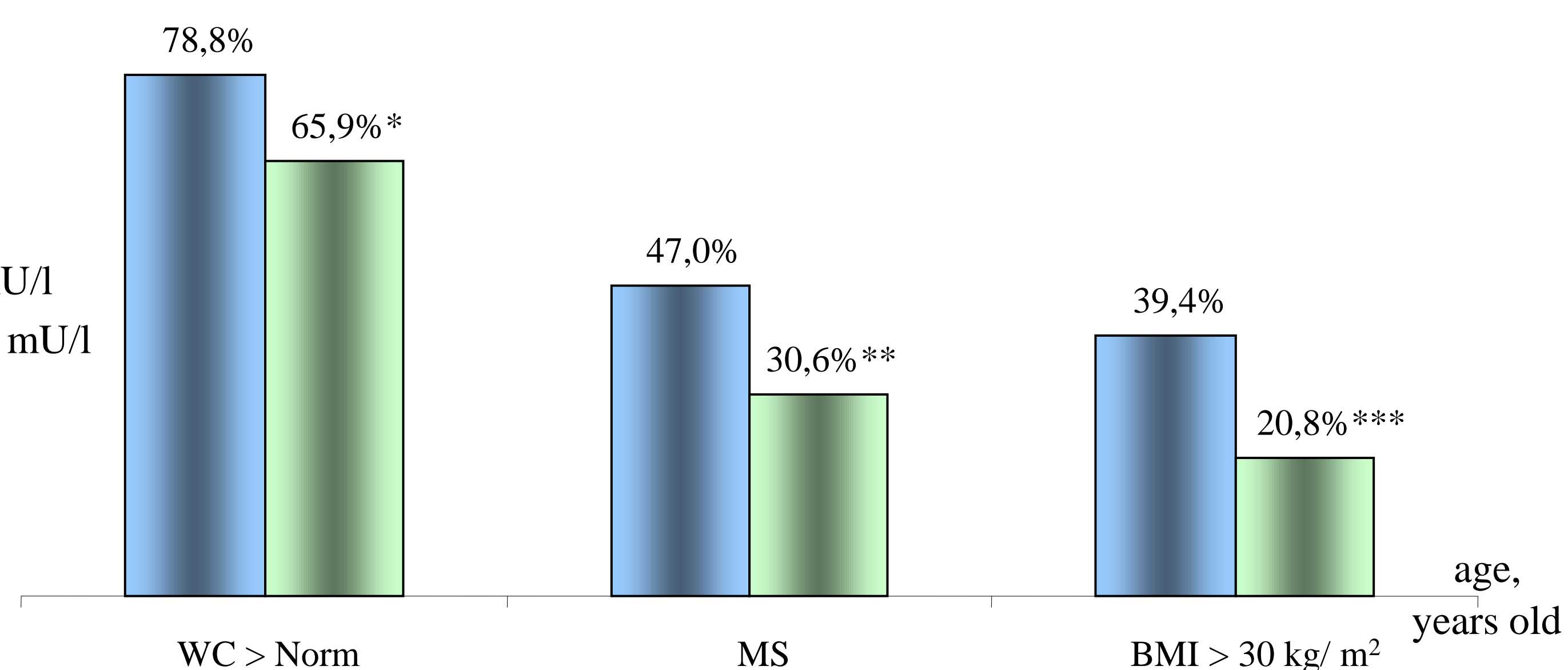


Fig. 4 — TSH-level by individuals with overweight and MS (individuals 20-40 years old)
* — significant differ between hypothyroidism and euthyroidism, $P < 0,05$
** — $P < 0,01$; *** — $P < 0,001$

Conclusions

Our screening study has demonstrated the most evident influence of hypothyroidism on MS development with young people (20-29 y.o.). Such effect disappeared with the older age groups, even if their rate of MS was higher.