

9. SUMMARY

1. Natural sources such as water or soil contain iodine in low amounts in the Czech Republic.
2. Clinical manifestations of iodopenia were severe and occurred in certain geographical areas in the past.
3. Iodization of table salt started in the fifties of the last century as a result of extensive epidemiological research and since then it has significantly improved iodine saturation in general.
4. Further steps in iodine prophylaxis in the mid-nineties of the 20th century have improved iodine saturation according to ICCIDD/WHO criteria.
5. Resolution of iodine deficiency does not represent, however, a closed chapter.
6. Individuals at risk, such as pregnant or breastfeeding women and patients on a salt-restricted diet, are worthy of public health concern.
7. There needs to be increased awareness of chronic excess of iodine with respect to an increasing prevalence of autoimmune thyroid disorders.
8. There is a need to continue education of the general population focused on adequate iodine intake from various foods (see products, milk) and to maintain a daily iodine intake in the „optimal ranges“. Based on the international criteria, the Czech Republic is iodine sufficient country. This happened due to a multidisciplinary collaboration coordinated by the Regional Iodine Deficiency Council established in the National Institute of Health. Continuous monitoring with early resolution of problems are necessary with regard to changing life-style and health conditions in the general population.
9. Volume standards of the thyroid gland have been specified for the first time based on a random selection of population from 11 regions in the Czech Republic. A cohort of men and women, 18-65 years of age, with ioduria over 100 ug/1, underwent the thyroid gland volume measurement to define the specific volume standards, including the upper and lower ranges of normal, with respect to the local geographical conditions. The definition of the thyroid volume standards in our pilot study has indisputable practical impact for the clinical endocrinologists. Disorders of the thyroid gland volume can be diagnosed reliably according to gender and age-specific volume standards with a possibility to start adequate treatment and to follow the dynamic of volume changes under treatment. The thyroid volume standards have been recommended by the Czech society of endocrinology for general use in the clinical endocrinology.
10. Decreased echogenicity, assessed by the thyroid ultrasonography, can be an early marker of the autoimmune thyroid diseases before the clinical or laboratory manifestations develop. Thyroid ultrasonography with assessment of the thyroid antibodies enable a prompt diagnosis of autoimmune thyroid diseases leading to rational therapy with a possibility to follow structural changes in the course of therapy.
11. Our study showed important correlations between the body composition, body fat distribution and functional parameters of the hypophyseal-thyroid axis. Some of the relationships are gender-dependent. Free T3/freeT4 ratios correlated with age and moreover with BMI in both males and females. Activity of of deiodases, reflected by the free T3/freeT4 ratio, depends mostly on energy intake.

12. Dynamics of the thyroid volume, followed for 5 years in different regions of the Czech Republic, demonstrated lower incidence of goiter unrelated to increasing or stable ioduria in particular regions.