

Background: Thyroid dysgenesis (TD) and thyroid dyshormonogenesis clinically manifest as permanent primary congenital hypothyroidism (CH) and only rarely as non-congenital, postnatal non-autoimmune hypothyroidism. As basic molecular events underlying the regulation of thyroid development, growth and function were clarified in the last decade, molecular pathogenesis of TD and dyshormonogenesis has been intensively studied. Candidate genes for TD and dyshormonogenesis had been described and their mutations were subsequently detected in several patients with non-syndromic and syndromic CH. Nevertheless, no systematic population-based phenotype-focused molecular genetic analysis had been performed and concerning TD, the data regarded only a few individual patients.

Aim: The aim of this extensive study was to identify monogenic forms of TD and dyshormonogenesis in a population-based cohort of Czech patients mostly with CH. Systematic mutation screening was based on a detailed clinical information and phenotype description, and thus focused on clinically defined subgroups of patients matching the phenotypes of already known candidate gene mutations.