

# The Biochemical Prognostic Factors of Subclinical Hypothyroidism

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Subclinical hypothyroidism (SCH) is a very common condition and is defined as elevated serum thyroid-stimulating hormone (TSH) level with normal levels of circulating free thyroxine and triiodothyronine [1]. Recent population-based Korean studies have reported a high prevalence of 11% to 17% [2]. SCH is more common in women (6% to 10%) than in men (2% to 4%) [3-5]. Age is also a well-known risk factor. Some large studies showed significant positive correlation between age and SCH prevalence [6]. Serum thyroid peroxidase antibody (TPO Ab) positivity is associated with the prevalence of SCH [3,4,7].

In the Whickham 20-year follow-up study, risk of developing overt hypothyroidism was significantly higher in subjects with positive TPO Ab and increased TSH level than in those with only elevated TSH level [8]. In addition, iodine intake [9], racial differences [4], cigarette smoking [10], and cold environmental temperature [11] have also been suggested as risk factors of SCH.

There have been some controversies about effects of SCH on obesity, dyslipidemia, cardiovascular disease, and cognition [12-17]. Some studies showed increased total cholesterol (TC) and low density lipoprotein cholesterol (LDL-C) levels in SCH subjects [6], while other studies showed no differences in lipid profile between SCH and euthyroid subjects [4]. A randomized double-blind placebo-controlled trial, 12-month levothyroxine treatment with 31 patients resulted in significant reductions in TC and LDL-C levels compared with those of 32

placebo subjects [17].

Therefore, the treatment of SCH is controversial. Prediction of progression of overt hypothyroidism is very important in a clinical setting. However, there are no definite predicting factors. In the study of Lee et al. [18], the authors compared characteristics of SCH patients according to initial TSH level and spontaneous improvement and identified predicting factors of progression to overt hypothyroidism. Higher initial TSH level and TPO-Ab positivity or titers were significantly correlated with maintenance of SCH and unfavorable lipid profiles. Initial TSH level was an independent and strong prognostic factor even in SCH subjects with mildly elevated TSH (5 to 10 mU/L). Although more studies are needed, initial TSH level and TPO Ab titer are very useful predicting factors when deciding on treatment for SCH.

## CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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