

Permanent Thyroid Hormone Replacement Therapy after Total Thyroidectomy is Really Innocent?

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Abstract

Thyroid hormone replacement with L-thyroxine is used after total thyroidectomy performed for both benign thyroid disorders and thyroid cancer. It is required to replace endogenous thyroid hormones and to inhibit tumor growth by its negative feedback on thyroid stimulating hormone secretion. The question usually ignored at this point of treatment is the potential harmful lifelong cumulative effects of these exogenous drugs. In the present mini-review, we will discuss this topic.

Keywords: Total Thyroidectomy; Thyroid Hormone Replacement Therapy; Lifelong Cumulative Effect; Side Effects

The rationale for administering levothyroxine (L-thyroxine) therapy to patients with thyroid carcinomas is based on the evidence collected such as the thyroid cancer patients with thyroid stimulating hormone (TSH) levels below 0.1 mU/L had an improved rate of relapse-free survival compared with those whose TSH levels were always above 1.0 mU/L, and this effect was independent of age, gender, histology, and tumor stage [1]. Furthermore, total thyroidectomy is also shown to be more effective than near-total or subtotal thyroidectomy in terms of the relief of hyperthyroidism and recurrence of other benign thyroid disorders or nodules. It is also well known that re-operations for recurrent thyroid disease has more complications, such as vocal cord paralysis and hypoparathyroidism.

Beyond keeping TSH levels below 0.1 mU/L, oversuppression causes subclinical thyrotoxicosis and may lead to atrial fibrillation and osteoporosis in elderly and exacerbate angina [2,3]. Having enough thyroid hormone is important for maintaining normal mental health and physical activity. In children, having enough thyroid hormone is important for normal mental and physical development. Insufficient hormone replacement treatment results in symptoms of hypothyroidism, such as fatigue, hair loss, memory loss, dry, rough skin, constipation, increased cholesterol levels and depression. Therefore, in all cases using exogenous thyroid hormones, regular controls should be done to check if the dose is above or below the normal desired ranges. One should avoid under- or over-treatment with this drug. This may result in adverse effects. Therefore, initial evaluation of drug level should be every 6-8 weeks. Once normalization of thyroid function and serum TSH concentration achieved, evaluation every six to 12 months is enough.

The well-known side effects of L-thyroxine are listed below.

In conclusion, there are several potential harmful cumulative effects of thyroid hormone replacement treatment and one should avoid under- or over-treatment with this drug. One should avoid under- or over-treatment with this drug. This may result in adverse effects.

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Chest pain (angina pectoris)	Joint pain
Congestive heart failure	Flushing
Increased pulse	Heart attack
Palpitations	Irregular heartbeat
Cramps	Diarrhea
Anxiety	Choking sensation
Mood changes	Headache
Heat intolerance	Insomnia
Muscle weakness	Pseudomotor cerebri
Hair loss	Weight loss
Shortness of breath	Fever
Fast heart rate	Tremor
Decreased bone mineral density	Infertility

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