serum thyroglobulin (Tg) as a tumor marker; (b) a large remnant might obscure the detection of cervical or lung metastases in long-term follow-up; (c) the presence of a large remnant renders it difficult to achieve an appropriately elevated serum TSH—and thus RAI uptake by the tumor—in case RAI therapy is needed for tumor metastases; and (d) RAI ablation can also be cytocidal for concomitant micrometastases, as well as normal thyrocytes within the remnant that have a defined (above zero) lifelong potential for malignancy.

In order to achieve optimal conditions for RAI ablation, serum TSH needs to be >25 mU/L. In the past, this was achieved by increasing endogenous (pituitary) TSH by instituting iatrogenic hypothyroidism after thyroidectomy. Recently, with the advent of recombinant human TSH (rhTSH), one can bypass the hypothyroid preparation and its associated morbidity. On-going studies are focusing on the question of relative efficacy of such an approach vs. “classic” hypothyroidism with regard to rates of achieving RAI ablation, but preliminary data suggest that rhTSH administration is equivalent to hypothyroid preparation.

The optimal RAI dose for ablation is debatable and, to a certain degree, depends on the amount of thyroid tissue left behind after thyroidectomy. Lower doses (~30 mCi; 1.11 GBq) are appealing because they can be given on an outpatient basis. However, a recent meta-analysis showed that doses between 75-100 mCi (2.78-3.7 GBq) are more efficient than doses of 30 mCi (1.11 GBq) in achieving complete remnant ablation. Patients with more sinister prognostic factors would probably benefit from RAI ablation doses at the higher end of the spectrum (100-125 mCi; 3.7-4.63 MBq). Of note, a post-therapy RAI whole body scan should be performed after remnant ablation, as it can occasionally detect previously unappreciated or unsuspected sites of local or metastatic spread.

### iii) Thyroid hormone suppression therapy (THST)

Although THST has been shown to significantly reduce recurrence and TC-specific mortality rates in both single institution studies and meta-analyses, the minimum degree of TSH suppression to achieve this effect remains debatable. In PTC/FTC patients, the levothyroxine (LT4) dose needed to maintain serum TSH suppressed is ~2.1-2.4 µg/kg/day, as opposed to the replacement therapy doses of 1.6-1.8 µg/kg/day.