Radioactive iodine treatment with adjunctive use of thyrotropin alfa in advanced differentiated thyroid carcinoma: Local experience

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ABSTRACT

Introduction: Thyrotropin alfa is primarily used to prepare non-metastatic differentiated thyroid carcinoma (DTC) for radioactive remnant ablation, diagnostic whole-body scan (WBS), or stimulated serum thyroglobulin (Tg) assessment. Conventionally patients are advised to withhold oral thyroxine to induce hypothyroid state prior to these procedures. Nevertheless, limited data are available on adjunctive use of thyrotropin alfa in high-dose radioactive iodine (RAI) treatment for advanced DTC. We aimed to evaluate local practice of this adjunctive administration. **Materials and Methods:** Case series of metastatic DTC patients who received adjunctive thyrotropin alfa for high-dose RAI >80 millicurie in our institution (2017-2018) and attended subsequent clinic monitoring. Positive anti-Tg cases and patients who defaulted on management or follow-up were excluded. In total, 12 cases were included. Besides safety profile of thyrotropin alfa, clinical parameters including thyroid stimulating hormone (TSH), serum Tg levels at 6-12 months post-treatment, and disease status with a minimum of 3 years follow-up were compiled. **Results:** Mean age was 62 years. Equal distribution of males and females. Majority had follicular thyroid cancer with comorbidities (n=8). No major medication side effects were reported. All patients had adequate TSH increase following thyrotropin alfa injection. Pre-treatment Tg levels were significantly elevated (>100 ng/ml) in 10 cases. Most patients had positive post-treatment WBS (n=11). Further RAI treatment was planned for most patients (n=11), and oncology referrals were also made (n=7). Mean Tg level at 6-12 months after radioiodine therapy was lower than baseline but not statistically significant (269.1 vs. 578.3 ng/ml, p=0.319). On follow-up, only 2 patients showed remission or stable small volume disease. **Conclusion:** In our small cohort of advanced DTC patients, adjunctive thyrotropin alfa has been well-tolerated with no major side effects and spared them from hypothyroidism. Despite some reduction in post-RAI serum Tg, minority had remission or stable small volume disease.

Keywords: Thyroid carcinoma, thyrotropin alfa, radioactive iodine