Potential use of recombinant human thyrotropin in the treatment of distant metastases in patients with differentiated thyroid cancer.

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Abstract

OBJECTIVE:

In order to effectively treat differentiated thyroid cancer (DTC) with radioiodine (RAI) it is necessary to raise serum TSH levels either endogenously by thyroid hormone withdrawal (THW) or exogenously by administration of recombinant human TSH (rhTSH). The goal of this review is to present current data on the relative efficacy and side effects profile of rhTSH-aided versus THW-aided RAI therapy for the treatment of patients with distant metastases of DTC.

METHODS:

We have searched the PubMed database for articles including the keywords "rhTSH", "thyroid cancer", and "distant metastases" published between January 1, 1996 and January 7, 2012. As references, we used clinical case series, case reports, review articles, and practical guidelines.

RESULTS:

Exogenous stimulation of TSH is associated with better quality of life because it obviates signs and symptoms of hypothyroidism resulting from endogenous TSH stimulation. The rate of neurological complications after rhTSH and THW-aided RAI therapy for brain and spine metastases is similar. The rate of leukopenia, thrombocytopenia, xerostomia, and pulmonary fibrosis is similar after preparation for RAI treatment with rhTSH and THW. There is currently a controversy regarding RAI uptake in metastatic lesions after preparation with rhTSH versus THW, with some studies suggesting equal and some superior uptake after preparation with THW. Analysis of available retrospective studies comparing survival rates, progression free survival, and biochemical and structural response to a dosimetrically-determined dose of RAI
shows similar efficacy after preparation for therapy with rhTSH and THW.

CONCLUSION:

The rhTSH stimulation is not presently approved by the FDA as a method of preparation for adjunctive therapy with RAI in patients with metastatic DTC. Data on rhTSH compassionate use suggest that rhTSH stimulation is as equally effective as THW as a method of preparation for dosimetry-based RAI treatment in patients with RAI-avid metastatic DTC.

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