



## State of the art management of Radioactive-Iodine Refractory Differentiated Thyroid Cancer (RAIR DTC)

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### Abstract:

**Introduction:** The treatment options for patients with radioactive-iodine refractory differentiated thyroid cancer include observation, multi-tyrosine kinase inhibitors (MTKIs), and traditional chemotherapy. An appropriate initial treatment with MTKI is challenging in clinical practice that the benefits outweigh the risk of any adverse events. Treatment strategies for Radioactive-Iodine Refractory Differentiated Thyroid Cancer: The activation of multiple downstream VEGFR signaling pathway, oncogenic mutated kinases (e.g. BRAF mutations), rearrangements of RET, ALK, NTRK, and TERT promoter mutation are molecular mechanisms involved in RAIR DTC. MTKIs demonstrated the clinical benefits either progression-free survival (11 to 18 months) or response rate (24-63%).

Sorafenib and lenvatinib were approved by FDA for treatment of RAIR DTC. However, up to 60% of patients with MTKIs required a dose reduction due to adverse events (AEs). The most frequent AEs are hypertension, diarrhea, weight loss, mucositis, fatigue, hand-foot syndrome, alopecia, and diarrhea. Therefore, close monitoring for disease progression and TSH-suppressive therapy are appropriate treatment for those patients with asymptomatic metastatic disease, or slow growing tumor. Initiation of treatment with MTKIs should be considered in symptomatic disease or rapid growing tumor.

**Conclusions:** MTKIs demonstrate a promising approach. Sorafenib and lenvatinib have been approved by the FDA for the treatment of RAIR DTC. However, multidisciplinary evaluation for adjustment made in order to take account of clinical benefit and risks should be performed before initiating MTKIs regarding to potential toxicities.

### Biography:

Dr. Prasongsook has completed Thai Board of Medical Oncology from Ramathibodi Hospital, Bangkok, Thailand, then postdoctoral research fellowship in Medical Oncology at Mayo Clinic, and a master degree of Clinical Translational Science Program from Mayo Graduate School, Rochester, MN, USA. Current position is assistant professor in Medical Oncology unit at Phramongkutklao Hospital, Bangkok, Thailand. Research



interests include all areas of care related to endocrine malignancies, with focusing on thyroid cancer, lung cancer, and nutraceutical approach in cancer treatment.

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[Global Summit on Oncology and Cancer Therapy | November 23, 2020 | 4:00PM IST](#)

**Citation:** Naiyarat Prasongsook; State of the art management of Radioactive-Iodine Refractory Differentiated Thyroid Cancer (RAIR DTC); Oncology Research 2020; November 23, 2020; 4:00PM IST