Childhood radiotherapy and thyroid cancer: lower risk at very high radiation doses

Patients who have undergone upper-body radiotherapy for childhood cancer have an increased risk of developing primary thyroid cancer in later life. A recent case-control study published by Sigurdson *et al.* in the *Lancet* demonstrates that this risk is reduced in those who received radiation doses exceeding 30 Gy compared with those treated with lower doses.

Study participants were selected from the Childhood Cancer Survivor Study cohort, and were all diagnosed with various malignancies between 1970 and 1986, before they were 21 years old. Cases ($n=69$) had primary thyroid cancer diagnosed more than 5 years after their original childhood tumor, and matched controls ($n=265$) had intact thyroid glands and no evidence of thyroid malignancy.

Children who had undergone radiotherapy were shown to have a significantly increased relative risk of developing primary thyroid cancer ($P=0.028$) when compared with those who had not been irradiated. This risk increased with radiation doses up to 29 Gy, and decreased for doses greater than 30 Gy, an effect that was more apparent in those younger than 10 years at first cancer diagnosis. After adjusting for treatment, Hodgkin's lymphoma was also associated with an increased risk of developing thyroid cancer when compared with other first diagnoses. The authors postulate that the downturn in the dose-response relationship for thyroid cancer at high radiation doses is consistent with a cell-killing effect.

Alexandra King

Original article Sigurdson AJ *et al.* (2005) Primary thyroid cancer after a first tumour in childhood (the Childhood Cancer Survivor Study): a nested case-control study. *Lancet* 365: 2014–2023

Elevated carcinoembryonic antigen levels are linked to gefitinib sensitivity

Researchers in Japan have demonstrated that patients with advanced non-small-cell lung cancer (NSCLC) with elevated levels of serum carcinoembryonic antigen (CEA) have increased sensitivity to gefitinib. This research

stems from previous studies that have shown that different patient populations have varying sensitivity to this anticancer drug.

The retrospective trial, which included 105 patients with advanced NSCLC, analyzed patients for a variety of pretreatment variables including CEA serum concentration. Patients received oral gefitinib 250 mg/day until disease progression, unacceptable toxicity, or patients' withdrawal.

The results from the study showed that the overall response rate to gefitinib was 27.8% and the median survival 9.3 months. The investigators compared responders with non-responders and found that patients with elevated CEA levels were more likely to be sensitive to gefitinib. They also found that elevated CEA is an independent positive prognostic factor for gefitinib treatment.

The data from the trial are surprising, because elevated CEA is generally considered to be a negative prognostic factor for NSCLC. The data suggest that CEA proteins play an important role in epidermal growth factor receptor signaling. The authors also note that there could be a link between a mutant form of epidermal growth factor receptor, which is more sensitive to gefitinib, and elevated CEA levels. Further clinical and basic work is required to elucidate the relationship between gefitinib sensitivity and the CEA protein.

Rachel Murphy

Original article Okamoto T *et al.* (2005) Serum carcinoembryonic antigen as a predictive marker for sensitivity to gefitinib in advanced non-small cell lung cancer. *Eur J Cancer* 41: 1286–1290

Link between statin use and improved response to neoadjuvant therapy in rectal cancer

3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitors, or statins, are commonly prescribed cholesterol-lowering medications with demonstrated anticancer activity in the colon. Through a retrospective review of patient records from the Memorial Sloan-Kettering Cancer Center, Katz and colleagues investigated whether the efficacy of neoadjuvant chemoradiation was increased by concurrent statin use in patients treated for nonmetastatic rectal cancer.