dehydrogenase (LDH, cell death indicator) to assess response. Nine HNSCC biopsies (T1-T3) were analyzed for LDH release following radiotherapy (2-30Gy).

**Results:** Initial cell death decreased reproducibly to minimal levels in all tissues between 12-24 hours. Tissue remained viable for up to 17 days. Rat liver: 0-2 hours after 20Gy radiotherapy (single dose), an LDH surge with concomitant decrease in urea and albumin was observed. The tissue partly disintegrated. 2 × 10Gy fractionated doses resulted in effects after the second fraction. The tissue remained intact. HNSCC biopsies: Tongue base (n = 3), larynx (n = 3), lymph node metastases (n = 2) 30Gy: Larynx responded. Tongue base (postradiotherapy recurrence) did not. 10Gy: Tongue base responded, not larynx or lymph nodes. No response in any tissues with <10Gy.

**Conclusion:** A model to assess tissue response to radiotherapy was successfully established using rat liver. Preliminary results with HNSCC samples have shown that a response to radiotherapy can be elicited at different doses using this technique. Correlation with histology and clinical response will further validate this technique as a predictive tool.

**Head and Neck Surgery**

**Modified Brief Fatigue Inventory in Head and Neck Cancer**

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**Objective:** The aim of this study is to validate the Modified Brief Fatigue Inventory (MBFI). This is the first instrument designed to measure intensity and frequency of fatigue specifically in head and neck cancer patients, potentially allowing objective measurement in addressing this common symptom in a concise yet thorough fashion.

**Method:** The 9-item MBFI was administered to 52 consecutive cancer patients and 57 consecutive controls from the outpatient otolaryngology clinic of an academic tertiary medical center. Subject demographics, co-morbidities, cancer site, and cancer stage were recorded. Psychometric properties and predictors of the MBFI were analyzed.

**Results:** MBFI 1-week test-retest reliability was excellent (r = 0.800, P < .001). Internal consistency was also excellent (Cronbach’s α = .938). Construct validity of the MBFI compared to the previously validated Multidimensional Fatigue Symptom Inventory Short Form was excellent (r = 0.814, P < .001). Discriminant validity of cancer versus controls was significant (P = .027). Predictors of increased MBFI score included 1) American Society of Anesthesiologists (comorbidity) score (bivariate analysis r = 0.287, P = .039), 2) cancer stage (analysis of variance P = .007), and 3) adjuvant radiotherapy (t test P = .016). No significant relationship was found with age, gender, marital status, education, ethnicity, feeding tube, tracheostomy, or laryngectomy.

**Conclusion:** The MBFI is a reliable and valid tool for measuring fatigue levels in head and neck cancer patients. In the context of initial assessment or posttreatment trending, this brief survey can be rapidly administered, providing valuable objective data on a very common and potentially debilitating symptom.

**Head and Neck Surgery**

**Neck Dissection for T1 Oral Tongue SCCA:** The UCLA Experience

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**Objective:** The study was carried out in order to 1) evaluate features that could identify patients having increased risks of regional recurrences, and 2) examine the prognostic and therapeutic implications of elective neck dissection among patients who presented with early-stage oral tongue squamous cell carcinoma with clinically negative neck (T1cN0).

**Method:** A retrospective chart review of oral tongue cancer at a single tertiary institution identified 123 patients with T1cN0 oral tongue squamous cell carcinoma who underwent surgical tumor extirpation with/without adjuvant radiation treatment and/or chemotherapy from 1990 through 2009. This database was used to identify characteristics that are associated with occult lymph node metastases and measurement of patient outcomes.

**Results:** Eighty-nine patients underwent elective neck dissection, of which 20 patient specimens (22%) were found to harbor occult metastatic disease. However, no significant differences were noted in the frequency of regional recurrence according to gender, age, tumor size, the presence of perineural invasion, or occult metastatic disease (P = .70, .29, .54, .30, and .47, respectively). In addition, patients who underwent elective neck dissection experienced lower rate of regional recurrence, although this did not achieve a statistically significant level (P = .52).

**Conclusion:** Clinical observation of the clinically negative neck is justifiable for early stage T1 oral tongue squamous cell carcinoma. Elective cervical lymphadenectomy offers no benefit in preventing regional recurrence when compared to clinical observation. Furthermore, neither patient factors nor intrinsic tumor features demonstrated any prognostic significance in the setting of early stage T1 oral tongue carcinoma.