

expression by IHC. Tumor sections were subjectively scored from 0 to 2+ (none, weak or focal, strong) based on the intensity of the stain, and compared by Chi Square analysis.

Results: All SCCa (N = 11) and only 5/12 (54%) BCC stained positive for pERK. Tumors expressed more pERK than normal skin χ^2 (2, N = 51) = 26.37, $P < .001$, and differed by tumor type, χ^2 (1, N = 23) = 6.77, $P = .009$. Tumor type significantly predicted pERK staining, $b = .67$, $t(20) = 2.39$, $P = .027$, and explained a significant proportion of variance in pERK scores, $R^2 = .33$, $F(3, 20) = 3.33$, $P = .04$, whereas age ($P = .59$) and gender ($P = .17$) did not explain the variance in pERK staining.

Conclusion: The MEK/ERK pathway appears to be overexpressed in SCCa compared with the more common BCCa. As curcumin has been shown to slow progression of cutaneous SCCa and inhibit pERK expression, the MEK/ERK pathway may prove a key biomarker in developing pharmaceutical agents that prevent SCCa tumor growth.

Head and Neck Surgery

Preclinical Strategies to Optimize Optical Imaging in Head and Neck Cancer

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Objective: There is a need for cancer imaging in the clinic and operating room. We have shown that fluorescently labeled antibodies can detect microscopic islands of head and neck cancer cells using modified intraoperative microscopes in pre-clinical animal studies. Here we evaluated the optimal targeting molecule for clinical translation.

Method: We assessed in vitro binding of fluorescently labeled antibodies targeting EGFR (cetuximab/Erbitux and panitumumab/Vectibix) and an antibody mimetic (anti-EGFR affibody) in multiple cell lines (SCC5, OSC19, FADU). To compare in vivo imaging characteristics, HNSCC xenografts (SCC5, SCC1, FADU) were imaged after systemic injection of fluorescently labeled antibodies over 5 days.

Results: The binding affinity was lower for the control antibody IgG (KD = 9.55 nM) compared with either panitumumab (KD = 6.82 nM) or cetuximab (KD = 2.86 nM). In vitro, panitumumab had a two fold increase in relative fluorescence compared with cetuximab and a four fold increase in fluorescence compared with control antibody (nonspecific IgG). Xenograft imaging in vivo demonstrated a variation in fluorescence intensity that correlated with circulating half-lives: peaks in fluorescence intensity were seen at 1.5 h (affibody) and 48 to 72 h (cetuximab, panitumumab). The panitumumab and affibody images demonstrated greater tumor fluorescence and lower background signal compared to cetuximab.

Conclusion: Panitumumab/Vectibix demonstrated optimal imaging characteristics which appeared to be related to its binding affinity and increased circulation time. These characteristics

may allow for increased localization to the tumor site. Panitumumab may be the optimal antibody for clinical translation since it will decrease false positive rates associated with non-specific uptake.

Head and Neck Surgery

Prognostic Factors of Limited T1-2N0-I Oropharyngeal Cancers

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Objective: Nonsurgical therapies, which utilize combinations of chemotherapy and radiotherapy, have become popular treatments for early oropharyngeal carcinomas (OPC). The aim of this study is to analyze the outcome of primary definitive surgical management of patients with limited OPC and assess the influence of various prognostic factors in survival.

Method: A retrospective study was conducted between 1980 and 2007. A total of 266 surgically treated patients were included. The endpoints for the analysis were disease-specific survival (DSS) and local control (LC), with respect to T- and N-classification, status of margins, tumor depth, and type of treatment. Major complications were documented.

Results: Overall 5-year DSS was 89.9% and LC 93.3%. The univariate analysis showed a significant difference in DSS between pT1 and pT2 OPC (DSS 94.0% vs 81.2%, $P = .008$) and patients with tumor depth greater than 5 mm (DSS 94.5% vs 78.9%, $P = .031$). No difference could be found according to N-stage, marginal status, HPV status, type of treatment, and adjuvant radiotherapy. Multivariate analysis showed that T-stage (HR = 2.49, 95% CI = 1.243-4.974, $P = .01$) and tumor depth (HR = 2.88, 95% CI = 1.055-7.865, $P = .039$) were independently associated with DSS. Incidence of major complications was 8% and mortality rate 0.7%.

Conclusion: Primary surgical treatment is a very effective therapy against limited OPC independent to the surgical technique used. A low complication and mortality rate was documented. Patients with tumor depth of more than 5 mm have a significant worse survival and should be considered for adjuvant radiotherapy.

Head and Neck Surgery

Report of Outpatient Parathyroid Surgery: The UHC Database

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Objective: Determine demographics and cost analysis for outpatients undergoing parathyroid surgery at hospitals belonging to the University Health System Consortium (UHC).

Method: The UHC, Oak Brook, Illinois, was formed in 1984 and consists of 107 academic medical centers and 232 of their