8.30-9.20 SESSION 1 – CANCER RESEARCH

Moderators
Christian BONDE
Assaf ZELTZER

8.30 IDENTIFYING THE BORDER OF CUTANEOUS SQUAMOUS CELL CARCINOMA BY TARGETED EGFR ANTIBODIES CONJUGATED TO GOLD NANOPARTICLES

Asaf OLSHINKA, Nitza COHEN-GOLDENBERG, Dror FIXLER, Dean AD-EL

Petah Tikva, Israel

INTRODUCTION: Treatment goal in cutaneous squamous cell carcinoma (SCC) is complete removal of the tumor with clear histological margins. Gold nanoparticles (GNPs) can be distributed to a tumor by conjugating them with an antibody specific to the tumor's surface receptor. The consequent change in the optical properties of the cancerous tissue distinguishes it from normal tissue. Given that about 90% of SCCs overexpress epithelium-derived growth factor (EGFR), we sought to determine the sensitivity of diffusion reflection spectroscopy measurements of SCC targeted by GNPs bio-conjugated to anti-EGFR antibodies in identifying residual tumor in excision borders.

MATERIALS AND METHODS: Ten specimens of excised human SCC were divided into two sections. One was stained with hematoxylin and eosin to identify tumor borders, and these were then reflected onto the second, unstained deparaffinized section. Three sites of cancerous and normal tissue on each side in each specimen were identified microscopically. The reflectance spectra and diffusion reflection profile of these sites were measured before and after GNPs targeting.

RESULTS: On hyperspectral imaging, the mean number of sites with tumor per specimen was 2.5 for tissue identified microscopically as containing tumor and 1.2 for tissue identified as tumor-free ($p<0.05$, t-test). GNPs were detected in 25/30 tumor sites (sensitivity 83.3%, false-negative rate 16.6%) and 12/30 non-tumor sites (specificity 60%, false-positive rate 40%).

CONCLUSIONS: Noninvasive, nonionizing direct diffusion reflection scanning has high sensitivity for distinguishing cancerous from noncancerous tissue in histologic specimens is a promising tool for the intraoperative determination of SCC excision borders.

8.40 RETROSPECTIVE DATA ANALYSIS IN BREAST CANCER PATIENTS AFTER SKIN-SPARING OR NIPPLE-SPARING MASTECTOMY PROVE EFFICIENCY AND SUSTAINABILITY OF THIS BREAST-CONSERVING THERAPY

Felix J. PAPROTTKA, Nils-Kristian DOHSE, Detlev HEBEBRAND

Rotenburg, Germany

INTRODUCTION: Diagnosis of breast cancer confronts affected women with major challenges. These impaired patients often suffer from aesthetic limitations after tumor removal. Therefore, skin-sparing mastectomy (SSM) or nipple-sparing mastectomy (NSM) offer essential treatment options to achieve a safe-oncological and aesthetic pleasing breast reconstruction.

MATERIALS AND METHODS: From 2010 to 2015 in 43 female patients (n = 43), who were diagnosed with breast cancer, 52 skin-sparing mastectomies were performed in our department (28x SSM; 24x NSM). A retrospective data collection with median follow-up time of 3.14 years (range: 1 - 6 years) was carried out. Focus was on tumor entities, tumor recurrence, detection of complications such as seroma/hematoma, infection, capsular contracture, skin perforation and wound healing disorder, kind of breast reconstruction used et cetera. As alternative treatment options only plain mastectomy - going alongside with reduced aesthetic results - can be named.

RESULTS: Indications for the performance of a SSM/NSM were tumor biologies, no evidence of cutaneous tumor-infiltration and/or previous history of breast-conserving surgery with R1-resection status. The median patient age was 49 years. Patients suffered from invasive mamma carcinomas (28x; 17x accompanied by DCIS), DCIS (10x), LCIS (1x) or recurrence of breast cancer