with expected poor post-operative cosmesis may warrant radiotherapy. We report on the feasibility and safety of interstitial high dose rate (HDR) brachytherapy (BT) technique on lower eyelid tumors, a difficult location for surgical procedures.

Materials/Methods: Eight patients were treated at our institution during January and February 2011 with this technique. Median age was 73.5 years (range: 44 to 96), 7 male and 1 female. Average Karnofsky Performance Scale Index was 75% (range:60 to 90%). Histological diagnosis - basal cell carcinoma: 6 patients, squamous cell carcinoma: 1 patient; basal cell without exclusion of squamous cell carcinoma: 1 patient. Staging was T1a in 6 patients, T1b in one and T2 in the remaining one. 3 patients underwent pre-BT surgery (one with positive surgical margins, 2 with unevaluable margin status), however 6 patients had undergone at least one prior surgery. 3 patients were referred to our department after excisional or incisional biopsies. Treatment doses were extrapolated from low dose rate tables and ranged between 32.5 Gy/10 fractions to 50 Gy/10 fractions. In one patient we performed in vivo dosimetry. We provide a report on the application of interstitial catheters, dose prescription, treatment delivery and preventive management of local complications.

Results: All treatments were uneventful. 6 lower eyelid hematomas resolved within weeks; 7 patients - grade 1 radiodermitis; 1 patient - mild conjunctivitis. Treatment was very well tolerated by all patients without any treatment-related infection, severe hemorrhage or visual loss during treatment. There was no conspicuous tumor at treatment completion in any case. One patient had an ulcer at the tumor location, attributed to tumor lysis.

Conclusions: HDR BT is a feasible and safe technique for both basal and squamous cell carcinoma of the lower eyelid.

Author Disclosure: M.R. Ferreira: None. L. Bujor: None. C. Jesus: None. I. Monteiro-Grillo: None.

3006 The Frequency of Regional Tumor Development in Organ Transplant Recipients Treated for Squamous Cell Carcinoma of the Skin

B. Chang[1] J. Beitler[2]

[1]*Case Western Reserve University School of Medicine, Cleveland, OH,* [2]*Emory University School of Medicine, Atlanta, GA*

Purpose/Objective(s): Simple excision, Mohs micrographic surgery (MMS), and electrodessication and curettage (ED&C) are standard surgical treatments for squamous cell carcinoma (SCC) of the skin, offering excellent local control with five year recurrence rates lower than 8.1%, 3.1%, and 3.7%, respectively. Organ transplant recipients (OTRs) have an increased incidence of SCC, and it is frequently unclear whether lesions are recurrences or are new primary lesions close to the original lesion. The objective of this study was to review the efficacy of excision and MMS for OTR patients with SCC in the context of a strict definition of regional tumor recurrence. Under this definition, any recurrence of the same histology within the same functional unit was considered a recurrence if it occurred within two years of the index SCC and not a recurrence, but a new cancer, if the same histology developed within the same functional unit but 2 years or later from successful treatment.

Materials/Methods: A list of 100 consecutive patients was obtained from the Dermatologic Clinical and Outcomes Research database, from which 46 SCC OTR patients who had been treated definitively surgically. A chart review was performed. Each patient was classified by their type of transplant, duration and type of immunosuppressive regimen, first (index) SCC diagnosis, and the treatment of said diagnosis. Regional recurrence was defined as a SCC forming within the same cosmetic unit within two years.

Results: 6 out of 46, or 15.2% of the patients experienced recurrence with respect to their original index lesion. The time between the diagnosis of index lesion and the new regional lesion for each of the patients was 49, 51, 96, 364, 407, and 546 days. The mean number of lesions for these 46 patients was 4.35 (Range:1 - 33), with a median of 2 SCCs and a mode of 1 SCC.

Conclusions: Using our definitions, the recurrence rate for this cohort of 15.2% appears to be greater than those seen in the general population. The concept of clinically silent concertized areas on the skin may prompt consideration of adjuvant regional therapies such as creams or radiation. Addressing the post-treatment regional formation of SCC may lead to a substantial reduction in the morbidity of OTR patients.

Author Disclosure: B. Chang: None. J. Beitler: None.

3007 Breast and Gynecological Cancers in Jordan: A Comprehensive Epidemiological Analysis between 1996 and 2008

A. A. Salem[1], D. El Tannir[2], A. Salem[3]

[1]*King Hussen Cancer Center, Amman 11941, Jordan,* [2]*Petra University, Amman 11941, Jordan,* [3]*Hashimite University, Amman 11941, Jordan*

Purpose/Objective(s): The epidemiology of breast and gynecological cancer has been extensively studied in developed countries. However, epidemiological data is scarce in the Middle East. We present an epidemiological analysis of breast and gynecological cancers in the Jordan in an attempt to aid continuously evolving strategies for cancer surveillance and control.

Materials/Methods: Data from the national cancer registry addressing the period from January 1996 to December 2008 were reviewed. The Jordan cancer registry which was established in 1996 utilizes a passive and active capture system. Crude incidence rates are expressed per 100,000.

Results: A total of 7,794 breast, 1,202 uterine, 833 ovarian, 501 cervical, 57 vulvar, 32 vaginal, 17 placental and 7 fallopian tube cancers were registered. The crude incidence rate of breast cancer ranged from 20 to 29.9 with 28.8% occurring in 40 - 49 and 26.4% in 50 - 59 age groups. The median age was 51 (range, 16 - 100 years). Ductal carcinoma was found in 5,956 (76.3%) and lobular adenocarcinoma in 478 patients (6.1%). Overall for breast cancer; 1,412 (17.4%) harbored local, 1,504 (19.3%) harbored regional, 1,572 (18.3%) harbored metastatic disease while in 3,306 patients (45.2%) staging data was missing. The crude incidence rate of uterine cancer ranged from 2.4 to 5 with 31.9% occurring in 60 - 69 and 26.7% in 50 - 59 age groups. The median age was 59 (range, 7 - 98 years). Endometrial adenocarcinoma was found in 838 (62%) and sarcoma in 108 patients (8.9%). Overall for uterine cancer; 316 (26.3%) harbored local, 177 (14.7%) harbored regional, 172 (14.3%) harbored metastatic disease while in 537 patients (44.7%) staging data was missing. The crude incidence rate of ovarian cancer ranged from 1.9 to 3.6 with 20.8%

occurring in 50 - 59 and 20.7% in 60 - 69 age groups. The median age was 51 (range, 2 - 89 years). Epithelial tumors were found in 626 (74.6%) and germ cell tumors in 68 patients (8.1%). Overall for ovarian cancer; 117 (14%) harbored local, 150 (18 %) harbored regional, 142 (17%) harbored metastatic disease while in 424 patients (51%) staging data was missing. The crude incidence rate for cervical cancer ranged from 0.9 to 2.1 with 27.4% occurring in 40 - 49 and 23.3% in 50 - 59 age groups. The median age was 50 (range, 22 - 97 years). Squamous cell carcinoma was found in 333 (67%) and adenocarcinoma in 132 patients (26.6%). Overall for cervical cancer; 100 (20%) harbored local, 81 (16.2 %) harbored regional, 68 (13.6%) harbored metastatic disease while in 252 patients (50.3%) staging data was missing.

Conclusions: This study represents a comprehensive assessment of the epidemiological features of breast and gynecological cancers in Jordan basing a framework for enhancing strategic health plans regarding cancer surveillance and control in Jordan and the Middle East.

Author Disclosure: A.A. Salem: None. D. El Tannir: None. A. Salem: None.

3008 Radiation Oncology in the Core Clinical Medical School Curriculum: An Update on the Oncology Education Initiative

A. E. Hirsch, N. DeNunzio, R. Levin-Epstein, J. Daniels, R. C. Handal

Boston University School of Medicine, Boston, MA

Purpose/Objective(s): The Oncology Education Initiative (OEI) was established in 2007 to advance oncology and radiation oncology education in the undergraduate medical curriculum. The OEI integrates structured radiation oncology didactics into the existing core radiology clerkship, offered to both third- and fourth-year medical students. Here we set out to determine whether these structured didactics would continue to increase overall medical student knowledge about radiation oncology.

Materials/Methods: We administered a pre- and post-clerkship test examining oncologic concepts. This multiple-choice exam was administered at the beginning and end of the radiology clerkship during which a 1.5-hour didactic session was given by a radiation oncology attending. Changes in individual question responses and overall categorical responses were analyzed. All hypothesis tests were two-tailed with a significance level of 0.05.

Results: During the 2010 academic year, 155/208 (75%) students were present for the pretest, posttest and lecture, and therefore met the requirements for evaluation. 77 (49%) students were third-years and 78 (51%) students were fourth-years. The average exam score improved from 62% to 70% ($p<0.001$). All topics (100%) showed improvement in scores with the largest absolute improvement seen in the radiation oncology category, which increased from 57% to 72% ($p < 0.001$). Fourth-year students performed significantly better than their third-year counterparts on the overall average pretest exam scores (64 % v. 60%, $p = 0.04$), however, there was no significant difference in posttest scores overall. (71% v. 68%, $p = 0.11$). Interestingly, as the year proceeded, average exam scores increased among third-year students and decreased among fourth-year students. Reviewing previous classes, in the 2008 academic year, 137 students had exam score improvements from 59% to 70% ($p = 0.011$). In the 2009 academic year, 145 students had exam score improvements from 60% to 71% ($p<0.001$). With over 400 students since the pre and post test were initiated, we continue to show significant improvements in the scores every year.

Conclusions: In the successive years since the inception of the OEI, the addition of radiation oncology didactics continues to show a significant improvement in medical students' knowledge of the field. Interestingly, it may be more beneficial to complete the radiology clerkship during the third-year, as students seemingly benefit more from the course at that point in their medical career. Radiation oncology didactics should be incorporated into the undergraduate medical curriculum to provide students with exposure to the field and a better understanding of multidisciplinary oncology management.

Author Disclosure: A.E. Hirsch: B. Research Grant; RSNA Education Seed Grant. N. DeNunzio: None. R. Levin-Epstein: None. J. Daniels: None. R.C. Handal: None.

3009 Automated Plan Evaluation Tool

P. Kapur[1], R. Kapoor[1], S. L. Kapoor[2]

[1]*University of Florida, Gainesville, FL,* [2]*B.L. Kapur Memorial Hospital, New Delhi, India*

Purpose/Objective(s): To present software for a Radiation therapy facility that will simplify and automate the process of dosimetric plan evaluation and will help clinicians and physicists to review and analyze the plan.

Materials/Methods: Every treatment plan requires certain dosimetric characteristics or parameters to be evaluated, which are essential for the assessment of a treatment plan. One can automate this process with software that can understand the treatment plan and DVH data and gives you the desired results. This software accepts DICOM RT data from an IHE-RO compliant Treatment planning system (Varian Eclipse v 8.6) and computes the DVH. There is also a facility to define disease site, technique and fractionation specific templates for dose volume constraints. This software helps you to analyze normal tissue tolerance doses against data in the literature and gives user the freedom to use α/β ratios to modify the tolerance values in accordance with dose-fractionation schemes (other than 2Gy/fraction). Based on treatment intent and treatment site templates can be designed and submitted in the software. These templates are then used to evaluate the dosimetric characteristics of a plan. Optimal plan can be chosen for the patient on basis of evaluation of integral doses, homogeneity index and conformity index.

Results: The prototype system has been used to design various templates for different treatment sites such as breast and prostate. The templates have been used to evaluate plan on the basis of various dosimetric parameters for several patients.

Conclusions: This prototype software provides a simplified solution for an automated dosimetric plan evaluation. These evaluated dosimetric parameters are stored in a database for all patients in the clinic. Clinician reports and patient follow-up information (quality of life information) could be linked with this database. This would help understand why certain radiation treatment techniques are better than others in certain cases of treatment.

Sample template showing Plan evaluation report for Prostate case
Name of Patient: XX Patient Id: XX
Date of Birth: Sex:
Case: Ca Prostate Fractionation scheme: X Gy/# in XX fractions
Refer table for tissue tolerance (Tissue Tolerance Comparison Result)