(19%) grade 3 anemia. Two hundred forty-three (29%) underwent workup for anemia, of which 68 (8%) had iron studies performed. Of those with iron studies performed, 12 (18%) patients had absolute iron deficiency and 4 (6%) had possible iron deficiency. Despite the small percentage of individuals with iron evaluation, 222 (19%) patients were placed on iron supplementation. Sixty-one were placed on oral iron and 6 were placed on iv iron supplementation.

Conclusions: Anemia is pervasive among gynecologic cancer patients, but compliance with NCCN guidelines is low. Our data suggest there are opportunities for improvement in evaluation and management of anemia among patients with ovarian and uterine cancer.

Poster #44

Preparation for Gynecologic Oncology fellowship during obstetrics and gynecology residency training: Incoming fellows' perspectives

A.M. Saiz[a], A.L. Shepherd-Littlejohn[b], H. Chen[a], G.S. Leiserowitz[c]. *[a]UC Davis Medical Center, Sacramento, CA, USA, [b]Winthrop University Hospital, Mineola, NY, USA, [c]UC Davis Comprehensive Cancer Center, Sacramento, CA, USA*

Objectives: To assess the perceptions of incoming Gynecologic Oncology fellows on how Obstetrics and Gynecology residency prepared them for subspecialty training.

Methods: A previously validated questionnaire, used to survey Gynecologic Oncology fellowship program directors, was modified and distributed to all incoming first year Gynecologic Oncology fellows. Distribution was via email and used commercially available survey software. The fellows were identified using a contact list provided by the Society of Gynecologic Oncology. The 25-item survey contained questions about fellows' surgical experience, their perceived ability to function independently both in the operating room and in other care settings, and their research experience. A Likert scale was used for responses. Standard descriptive statistical methods were used to analyze survey data.

Results: Thirty-five first year fellows completed the survey, for a response rate of 52.2%. In the surgical domains, fellows reported being most experienced and most comfortable with laparoscopic hysterectomy. Over 80% of respondents had performed 30 or more laparoscopic hysterectomies in residency. Despite reporting being the least comfortable with robotic hysterectomies, 48.6% of fellows had performed 16 or more cases. The majority of fellows (88.6%) felt mostly or very comfortable evaluating and managing post-operative complications but 57.1% reported feeling at most only somewhat

How comfortable do you feel performing hysterectomies independently?

comfortable discussing surgery and chemotherapy with patients. Most fellows reported formal research experience during residency, largely limited to written abstracts. Only 25.7% of respondents had presented more than two oral research presentations. Most (68.6%) rated their understanding of basic statistics as poor or fair and 57.2% reported their ability to formulate a research project and collect and analyze data as poor or fair.

Conclusions: Incoming Gynecologic Oncology fellows report being underprepared for advanced subspecialty training in certain aspects of surgery and oncologic counseling as well as independent research. In comparison to the perception of fellowship program directors, a greater percentage of fellows reported feeling overall prepared for autonomous surgical practice. In light of the ACGME changing guidelines with respect to surgical training and research curricula, appropriate preparation for fellowship training and independent practice remain important areas of education research.


Poster #45

Tumor involution is associated with dampening of immune elements

A. Suarez Mora[a], A. Vlad[b], R.P. Edwards[a]. *[a]Magee-Womens Hospital of UPMC, Pittsburgh, PA, USA, [b]Magee-Womens Research Institute, Pittsburgh, PA, USA*

Objectives: This study aims to determine the immune microenvironment (MIV) alterations of ovarian carcinoma during intraperitoneal (IP) chemotherapy induced tumor involution.

Methods: We identified a cohort of 10 patients with ovarian adenocarcinoma treated with IP chemotherapy during which serial biological samples were collected. Our cohort had available samples from early (pre-chemotherapy, cycle1), intermediate (cycle 2-4), and late time points (cycle 5, post chemotherapy). RNA was isolated from serially collected IP fluid cells and analyzed via a Nanostring multiplex gene expression panel focused on immune function. Genes differentially expressed between early, intermediate and late time points were identified. Paired tumor tissue samples pre- and post-chemotherapy were analyzed by immunohistochemistry (IHC) for CD8, CD19 and mucin-1 (MUC1). To evaluate humoral immunity in tumor involution, MUC1 antibody (α-MUC1) levels in IP fluid were measured by ELISA.

Results: A total of 161 immune genes from IP fluid cells were differentially expressed between early and late time points. Most of the gene expression changes occur late in chemotherapy, with 126 genes differentially expressed between intermediate and late time points and only 48 genes differentially expressed between early and intermediate time points. After adjusting for false discovery rate, 6 immunoregulatory genes were differentially expressed (downregulated) late in chemotherapy and remain differentially expressed overall. IHC analysis of tumor tissue confirmed low immune cell infiltrate post-chemotherapy. Interestingly, 4 of the 8 genes that were differentially expressed early in chemotherapy and remain differentially expressed overall were specific to B-cell function and increasing in expression. Of all differentially expressed genes between early and intermediate time points, the largest portion (36%) were specific to B-cell function. α-MUC1 presence was detected in IP fluid samples of 5 out of 8 patients. Average α-MUC1 absorbance in both early and late time points differed between patients who are still alive compared with patients who are deceased. IHC analysis of tumor tissue identified two patients with tertiary lymphoid structures containing T-cells and B-cells, both of which have survived over 7 years with recurrent ovarian carcinoma.
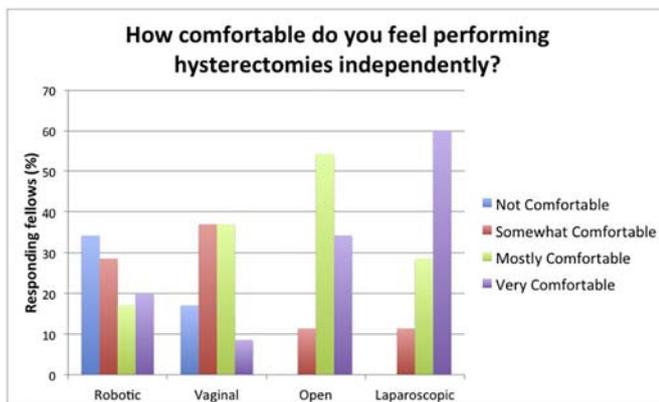
Conclusions: The immune microenvironment is actively changing during tumor involution. Most immune gene expression changes occur late in chemotherapy and correlate with a dampening of the immune response. Early in chemotherapy immune genes are upregulated, specifically B-cell associated genes suggesting an important role of humoral immunity in the tumor MIV. Signals of robust immune activation, as reflected by increased quantitative tumor-specific antibodies (α-MUC1) and tertiary lymphoid structures, may be MIV markers of longer survival.

doi:10.1016/j.ygyno.2019.03.150

Poster #46

Quantitative computed tomography image feature analysis predicts response to immune checkpoint inhibitors in gynecologic cancers

K.G. Essel[a], T. Thai[a], K. Ding[b], W.C. BurkettJr[a], K.N. Moore[c]. *[a]The University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA, [b]The University of Oklahoma, Oklahoma City, OK, USA, [c]Stephenson Cancer Center, The University of Oklahoma Health Sciences Center, Oklahoma City, OK, USA*

Objectives: To investigate the role of applying quantitative image (QI) feature analysis computed from computed tomography (CT) images for early prediction of tumor response to immune checkpoint inhibitors (ICPI) amongst patients with recurrent gynecologic cancer.

Methods: We conducted a retrospective review of 56 patients with gynecologic cancer at a single institution who received an ICPI for management of recurrent disease. Each patient had CT images prior to and after the initiation of therapy. A computer-aided detection scheme was applied to segment metastatic tumors previously tracked by radiologists on CT images and image features were computed. A QI feature pool was built and a features selection method was applied to select optimal features; an equal-weighted fusion method was used to generate a new quantitative imaging marker for each pool to predict 6-month progression-free survival (6PFS). The prediction accuracy between quantitative imaging markers and the response evaluation criteria in solid tumors version 1.1 (RECIST) criteria and immune RECIST criteria (iRECIST) were also compared. Complete response (CR), partial response (PR), stable disease (SD) and progressive disease (PD) were assessed by RECIST criteria.

Results: Of the 56 patients identified, 29 patients (51.8%) had ovarian cancer, 16 patients (28.6%) had cervical cancer, and 11 patients (19.6%) had uterine cancer. Thirty-eight patients (67.9%) received a programmed death 1 (PD-1) inhibitor, 11 patients (19.6%) received a programmed death-ligand 1 (PD-L1) inhibitor, 5 patients (8.9%) received a combination of PD-1 inhibitor and cytotoxic lymphocyte antigen-4 (CTLA-4) inhibitor, and 1 patient (1.8%) received anti-cell immunoglobulin and ITIM domain protein (TIGIT) and 1 patient (1.8%) received a GITR-agonist resulting in 1 CR, 9 PR, 9 SD, and 20 PD.

The area under the receiver operating characteristic curve (AUC) is 0.95 when using QI feature analysis to predict 6PFS and 0.81 when using RECIST criteria. The QI feature analysis resulted in a prediction accuracy level of 92.3% versus 61.5% when using RECIST criteria versus 70.9% when using iRECIST criteria.

Conclusions: Quantitative CT image feature analysis accurately predicts response to ICPI in patients with recurrent gynecologic cancer. This technology is a promising tool to predict the clinical benefit of ICPIs early in the course of treatment of gynecologic cancers.

doi:10.1016/j.ygyno.2019.03.151

Poster #47

A cost-effectiveness analysis of universal genetic testing for common hereditary cancer mutations in women compared with family-history based testing

A.B. Drummey[a], J. Brown[a], L. Drury[a], L. Amacker-North[a], K. Warsinske[a], K. Tyrie[a], R.W. Naumann[b]. *[a]Levine Cancer Institute, Carolinas Medical Center, Charlotte, NC, USA, [b]Levine Cancer Institute, Charlotte, NC, USA*

Objectives: Identifying patients who would benefit from hereditary cancer genetic testing by family history alone can miss a significant portion of both BRCA and Lynch mutation carriers. The purpose of this study is to determine whether population-based testing with a common hereditary cancer panel in all women regardless of family history is a cost-effective cancer prevention strategy.

Methods: A Markov decision-analytic model was constructed to estimate life expectancy with universal testing versus family history-based testing. The model was run from age 20 to 85. Testing was performed at age 35. The option of risk reducing surgery was factored in for ovarian, breast, and uterine cancer. The model considered estimates of cancer development and death based on current screening guidelines for known and unknown BRCA and Lynch mutation carriers as well as non-compliance with recommendations for genetic testing and risk reducing surgery. In addition, known rates of tubal ligation, hysterectomy and bilateral salpingo-oophorectomy for non-malignant conditions were taken into account in both groups. The model calculated the development of and mortality from breast, ovarian, colon, and uterine cancer.

Results: The improvement in overall life expectancy with universal genetic screening compared with testing based on family history is 710 life-years per 100,000 persons screened, assuming a pathogenic BRCA mutation rate of 0.67% and Lynch syndrome related mutation rate of 0.23%. Universal genetic screening would save 52.8 deaths from cancer per 100,000 women screened (8.6 breast, 3.7 colon, 25.6 ovary, and 14.8 uterine). Testing would reduce the overall number of deaths from ovarian cancer by 3%. Based on the real-world cost of the common hereditary cancer panel of $250 per screen, the calculated benefit would be $35,162 per life year saved by universal genetic testing. When considering QOL (quality-of-life) utility adjustments for cancer, the undiscounted benefit of universal testing was $20,725 per QALY (quality-adjusted life year).

Conclusions: Universal genetic testing appears to be an effective cancer prevention strategy. At current costs, universal genetic testing appears to be within the range of acceptable cost effectiveness under real world conditions. The benefit of screening is mainly due to the prevention of deaths from gynecologic cancers.

doi:10.1016/j.ygyno.2019.03.152

Poster #48

Use of bowel preparation does not reduce post-operative infectious morbidity following minimally invasive or open hysterectomies

E. Kalogera, H.K. Van Houten, L.R. Sangaralingham, B.J. Borah, S.C. Dowdy. *Mayo Clinic, Rochester, MN, USA*

Objectives: Bowel preparation (BP) is a controversial element within enhanced recovery protocols, and literature investigating its efficacy in gynecologic surgery is scarce. Our aim was to determine if mechanical bowel preparation (MBP) alone, oral antibiotics (OA) alone or a combination are associated with decreased rates of surgical site infections (SSI) or anastomotic leaks (AL) compared to no bowel preparation following benign or malignant hysterectomy.

Methods: We identified women who underwent hysterectomy between 01/2006-07/2017 using OptumLabs, a large US commercial