

for 91 incisions, occurring in 38 of 68 incisions (56%) closed with barbed, polydioxanone suture, and 53 of 105 incisions (50%) closed with braided polyglactin 910 suture ( $p=0.487$ ). Univariate analysis revealed no significant difference in dehiscence rates between closure techniques, when stratified by cancer diagnosis, radicality, or attending surgeon. Univariate analysis also revealed no significant difference in dehiscence rates between smokers and non-smokers, at 56% vs 46% respectively. There was no significant difference in postoperative pain or in rates of suture removal at follow up. Multivariate analysis, controlling for body mass index, operating time, estimated blood loss, age, smoking, cardiovascular disease, history of vaginal delivery, preoperative antibiotics and immunosuppression, demonstrated no statistical significance in dehiscence ( $p=0.55$ ). In the multivariate analysis, only body mass index significantly affected dehiscence rates ( $p=0.0053$ ).

**Conclusions:** The use of barbed, polydioxanone suture is a viable technique for the closure of both radical and nonradical vulvar excisions. Barbed, polydioxanone suture did not result in significantly increased rates of incision dehiscence in vulvar surgery. This initial study provides a basis for future randomized controlled studies to evaluate barbed, polydioxanone suture in vulvar incision closures.

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#### Poster #7

##### Prevalence of pelvic floor dysfunction among cervical cancer survivors

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**Objectives:** The prevalence and severity of pelvic floor dysfunction among cervical cancer survivors is unknown, but has been hypothesized to be higher than the general population. This may have a significant impact on quality of life in these women. This goal of this study is to evaluate the prevalence of pelvic floor dysfunction in cervical cancer survivors and ascertain the most common pelvic floor complaints in these patients.

**Methods:** An IRB-approved prospective survey was conducted among cervical cancer survivors who had completed their most recent treatment  $\geq 3$  months prior. Patients with active disease, those currently undergoing therapy of any kind, or those with history of pelvic exenteration were excluded. Participants completed a survey developed from the NCI's Patient-Reported Outcomes version of the Common Terminology Criteria for Adverse Events (PRO-CTCAE) during their routine surveillance visit. Summary statistics were used to describe demographic and clinical factors. Fischer's exact test, two sample t-test, Wilcoxon rank sum test, and chi-square test were used where appropriate.

**Results:** In total, 23 patients met inclusion criteria. Of these, 65.2% were Caucasian, 65.2% were stage 1, and the median BMI was 30. For primary therapy, 73.9% received radiation with or without chemotherapy, 17.4% received chemotherapy alone, and 56.5% received surgery with or without adjuvant therapy. The majority of patients (86.9%) reported some element of pelvic floor dysfunction. Regarding GI symptoms, 47.8% reported constipation, 39.1% reported diarrhea, and 17.3% reported fecal incontinence. In regards to urinary symptoms, 82.6% reported urinary frequency, 60.8% reported urinary incontinence, and 60.8% reported urinary urgency. The prevalence of pelvic pain was 39%. Of the 13 patients who answered questions about sexual dysfunction, 27% reported dyspareunia.

**Conclusions:** Pelvic floor dysfunction is very common among cervical cancer survivors. The most frequently reported symptoms are urinary, with more than three-fourths of patients noting urinary

frequency. Patient accrual for this study is ongoing to obtain a larger sample size. The knowledge gained from this data will help to determine how interventions, such as pelvic floor physical therapy, could improve quality of life in this patient population.

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#### Poster #8

##### Postoperative incisional cryoanalgesia for robotic hysterectomy

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**Objectives:** Cryoanalgesia has the ability to reduce local inflammation by producing isolated vasoconstriction and decreasing nerve conduction velocity. This process could theoretically decrease nociception at incision sites for postoperative patients and reduce need for opioid pain medications. The objective of this study was to obtain and compare Visual Analog Pain Scores (VAS) for robotic hysterectomy patients in the first postoperative 24 hours with and without application of cryoanalgesia to abdominal incision sites.

**Methods:** Consecutive patients receiving postoperative care for robotic hysterectomy following intervention for application of ice packs to abdominal incisions in the first postoperative 24 hours from November 2016 to May 2017 were compared to consecutive historical controls in a similar time period (April 2016 to October 2016). Patient demographics, medical comorbidities, surgical procedure, history of chronic pain medicine use, Visual Analog Pain Scores (VAS), total narcotic use and compliance to cryoanalgesia were collected. Student's t test, Analysis of Variance, the Tukey-Kramer method and multiple regression analysis were used for statistical analysis.

**Results:** A total of 93 patients were evaluated following ice pack intervention, and 72 patients were evaluated prior to intervention. Prior to the intervention, no patients received ice packs for cryoanalgesia. Following the intervention, all patients received an order for ice packs, with only 30 patients receiving ice, a 32% rate of compliance. Visual Analog Pain Scores were recorded over the first 24 postoperative hours in three separate 8-hour time frames using the Tukey-Kramer method for adjustment for multiple comparisons. In the pre-intervention group, the average VAS for each time frame 0-8 hours, 9-16 hours and 17-24 hours was 4.1, 3.1 and 3.9 respectively. For the post-intervention group, the average VAS for each time frame was 3.9, 3.1 and 3.9 respectively. There was no difference in VAS between the pre- and post-intervention groups ( $p=0.98$ ). Similarly, there was no significant difference between patients that did not receive ice packs to those who did ( $p=0.62$ ). A statistically significant difference in VAS was noted in both the pre- and post-intervention groups from 0-8 hours and 9-16 hours ( $p=0.04$  and  $p=0.01$ , respectively). Multiple Regression Analysis concluded that VAS was positively correlated with number of narcotic pills used ( $p < 0.0001$ ), but no correlation with age, BMI, estimated blood loss or ASA physical status classification.

**Conclusions:** Incisional cryoanalgesia did not improve Visual Analog Pain Scores during the first postoperative 24 hours in patients undergoing robotic hysterectomy. Overall low pain scores are reported following robotic hysterectomy where minimal analgesia is required.

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#### Poster #9

##### Expression and function of ER-B in premenopausal endometrial cancers

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**Objectives:** Research has shown that some cancers have a unique intra-tumoral environment which allows the cancer to regulate its own growth through production of estrogen as well as expression and activation of ER- $\alpha$  and ER- $\beta$ . ER- $\alpha$  activation has been shown to be proliferative. The effect of ER- $\beta$  activation is less clear but thought to be antiproliferative. Our objective is to define the intratumoral environment in a cohort of premenopausal endometrial cancers and to study the effect of specific ER- $\beta$  activation on cell growth.

**Methods:** Tissue microarrays were constructed. Immunohistochemistry was used to evaluate the expression of ER- $\alpha$ , ER- $\beta$ , aromatase, TNF- $\alpha$ , and IL-6. Scores were assigned for proportion and intensity of staining and a total score was calculated. ER- $\beta$  function was studied using the commercially available endometrial cancer cell lines Ishikawa, RL952, and HEC1A. Cells were treated with serial concentrations of the commercially available ER- $\beta$  agonists, S-Equol and Lignixigenin, for 24, 48, 72, and 96 hours. The MTT assay was used to test for cell growth. Western blot analysis was performed in the standard fashion on Ishikawa cells for expression of ER- $\alpha$  and ER- $\beta$  proteins. Statistical analysis for immunohistochemistry was carried out using Kendall rank correlation coefficient and Kruskal-Wallis test as appropriate. Cell culture statistical analysis utilized paired t-tests. Differences were considered statistically significant at  $p < 0.05$ .

**Results:** Endometrial cancers in this premenopausal cohort had high intratumoral expression of ER- $\alpha$ , ER- $\beta$ , aromatase, and TNF- $\alpha$  and IL-6. TNF- $\alpha$  had increased expression in the cancers as compared to controls,  $p = 0.001$ . TNF- $\alpha$  expression was positively correlated with the expression of aromatase,  $p = 0.02$ . Western blot showed that Ishikawa cells expressed both ER- $\alpha$  and ER- $\beta$  protein. All three cell lines exhibited an antiproliferative response to the ER- $\beta$  agonists in a dose dependent fashion. Optimal effects were seen at 72 and 96 hour of incubation. The EC50 was 75 $\mu$ M -100 $\mu$ M for all cell lines.

**Conclusions:** High expression of intra-tumoral TNF- $\alpha$  may be a driver of carcinogenesis through induction of aromatase and a subsequent increase in local estrogen production. ER- $\beta$  was highly expressed in this patient cohort. Specific activation of ER- $\beta$  with either of the ER- $\beta$  agonists resulted in a robust antiproliferative effect. Targeted therapy with the ER- $\beta$  agonists is an area that deserves further investigation.

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#### Poster #10

##### Long term survival in advanced stage low grade serous ovarian cancer

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**Objectives:** Low grade serous ovarian cancer (LGOC) represents approximately 6% of all ovarian cancers, with a median overall survival (OS) of approximately 6-8 years. A subgroup of LGOC patients (pts) appear to have more aggressive disease, but little is understood about what differentiates pts with short-term survival (STS) from those with long-term survival (LTS). The objective of this study was to determine clinical factors associated with STS and LTS in pts with stage III and IV LGOC.

**Methods:** A retrospective review of pts with newly diagnosed LGOC between 2005-2018 was conducted. Summary statistics were used to describe demographics and clinical characteristics. STS was defined as OS  $\leq$  25%ile for the cohort. LTS was defined as OS  $\geq$  75%ile for the cohort. Data were compared between the two groups using ANOVA and chi-square analyses.

**Results:** Of the 70 pts included, 94.3% were Caucasian, median age was 54.7 yrs, and 90% had stage III or IV disease. In pts with stage III or IV disease, median OS was 49.5 mo. Of the 16 pts in the LTS group, 100% were Caucasian, median age was 52.8 yrs, and 87.5% were stage III. This was not significantly different from the 16 pts in the STS group, of which 87.5% were Caucasian, median age was 61.9 yrs, and 62.5% were stage III (all  $p > 0.05$ , Table). As expected, RFS and OS were significantly longer in the LTS group (49 vs 3.5 mo and 101 vs 17.5 mo, all  $p < 0.001$ ). STS pts had a higher CA-125 at diagnosis ( $p = 0.03$ ) and were less likely to have a complete response after primary therapy ( $p < 0.001$ ) than LTS pts. While there was no difference in recurrence rates between groups ( $p = 0.37$ ), STS pts were more likely to be platinum resistant at the time of their first recurrence (8.3% vs 50%,  $p = 0.03$ ).

**Conclusions:** STS in advanced LGOC pts is associated with higher CA-125 levels at diagnosis, lack of CR to primary therapy, and platinum resistance at the time of the first recurrence. While other factors, such as age, appear to be clinically significant, there was likely a lack of statistical significance secondary to small numbers in each cohort. The recruitment of additional sites to improve the power of this study is ongoing. Additional research on the genetics and molecular characteristics of STS compared to LTS is an area of future focus.

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#### Poster #11

##### Factors that influence survival in high-grade serous ovarian cancer: A complex relationship between molecular subtype, disease dissemination, and operability

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**Objectives:** To investigate the relationship between molecular subtype, intraperitoneal (IP) disease dissemination patterns, resectability, and overall survival (OS) in advanced high-grade serous ovarian cancer (HGSOC).

**Methods:** Patients undergoing primary surgery for stage III-IV HGSOC at a single institution from 1994-2011 were categorized into three IP disease dissemination patterns: upper abdominal or miliary; lower abdominal; and pelvic. Residual disease was defined as 0 (R0), 0.1-0.5, 0.6-1.0, or  $> 1$  cm. Molecular subtypes were derived from Agilent 4x44k tumor mRNA expression profiles and categorized as mesenchymal (MES) or non-mesenchymal (non-MES).

**Results:** Operative and molecular data was available for 334 patients. Median OS was shorter in patients with MES compared to non-MES subtypes (34.2 vs 44.6 months;  $P = 0.009$ ). Patients with MES subtype were more likely to have upper abdominal/miliary disease compared to non-MES subtype (90% vs. 72%,  $P < 0.001$ ). For patients with upper abdominal/miliary disease, complete resection (R0) was less common in MES compared to non-MES subtypes (11% vs. 27%,  $P = 0.004$ ). On multivariable analysis, RD was the only factor associated with OS ( $P < 0.001$ ). In patients with upper abdominal/miliary disease, though less commonly achieved, R0 improved survival irrespective of molecular subtype (median OS of 69.2 and 57.9 months for MES and non-MES subtype).

**Conclusions:** Our results support a paradigm in which molecular subtype is an important driver of dissemination pattern; this in turn impacts resectability and ultimately survival. Consequently mesenchymal subtype is associated with much lower rates of complete resection, though R0 remains the most important independent predictor of survival.

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