■ O-CX-CLI-FEL-001

RADICAL VAGINAL TRACHELECTOMY – FERTILITY OUTCOMES AND SIGNIFICANCE OF THE LOWER UTERINE SEGMENT PRESENCE IN THE SUPERIOR MARGIN OF THE PATHOLOGIC SPECIMEN

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Objectives: To report if the presence of lower uterine segment (LUS) in the superior margin of the pathological trachelectomy specimen is associated with preterm birth following vaginal radical trachelectomy (VRT) for early-stage cervical cancer.

Study Methods: Review of 143 prospectively recorded patients treated by a laparoscopic pelvic lymphadenectomy (PLN) and VRT from January 2000 to December 2011 with regards to their cervical pathology and reproductive outcomes. Pathology was re-reviewed to identify the presence of LUS in the superior margin of the trachelectomy specimen.

Results: The median age was 31.5 years old, and 66% were nulliparous at time of surgery. Stage distribution was; 1A1 (14%), 1A2 (29%), and 1B1 (57%). No adjuvant treatment was administered to 90.1% of the patients. 52 pregnancies occurred, of which 30 (58%) reached the third trimester. The presence of the LUS in the superior surgical margin was identified in 60 patients (42%). When the groups were compared based on the absence or presence of LUS: 77% vs. 70% of the patients reported attempted conception and 43% vs. 27% were successful respectfully. The incidence of a gestation greater than 24 weeks was 37% vs. 20% (OR=0.42 [95% CI 0.19–0.92], p=0.03) and the term pregnancy incidence was 27% vs. 20% (OR=0.37 [95% CI 0.15–0.92], p=0.03) in favor of the patients without LUS.

Conclusions: The presence of LUS in the superior margin of the trachelectomy specimen is associated with a higher likelihood of preterm birth.

■ O-CX-CLI-MD-001

SIMPLE VAGINAL TRACHELECTOMY AND LAPAROSCOPIC LYMPH NODE EVALUATION IN PATIENTS WITH LOW RISK EARLY-STAGE CERVICAL CANCER

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Objectives: Evaluate the feasibility of simple trachelectomy and node assessment in patients with low-risk cervical cancer (<2cm).

Study Methods: From May 2007 to December 2011, 13 women with low-risk small volume cervical cancer underwent a simple vaginal trachelectomy preceded by laparoscopic sentinel node mapping ± pelvic node dissection. Data was collected prospectively in a computerized data base. Descriptive statistics and Kaplan-Meyer estimate were used for analysis.

Results: Patients' median age was 28 and 11/13 were nulliparous. Five had a cone, 5 a LEEP, 2 had biopsies and one polyp excision. Three patients had stage IA1 with LVSI, 5 IA2 and 5 IB1. Eight (61.5%) had squamous lesions, 5 had adenocarcinoma. LVSI was present in 3 cases, suspicious in 2 and absent in 8. There were two surgical complications: a trocar site hematoma and a vaginal laceration. The median OR time was 149 min (range: 120–180) and median blood loss was 73 cc (range: 50–150). On final pathology, lymph nodes were negative in all patients. Eleven patients (85%) had either no residual disease in the trachelectomy specimen (4) or residual dysplasia only (7). Only 2 had residual microscopic disease. With a median follow-up of 15 months (range : 1–56), there have been no recurrences. The recurrence-free survival at 24 months is 100%. One patient conceived and delivered at 39.5 weeks.

Conclusions: Simple trachelectomy and nodes appears to be a safe alternative in well selected patients with small volume disease. Our data will need to be confirmed in larger series.

■ O-ENDO-CLI-FEL-002

RISK OF RECURRENCE IN STAGE III, HIGH GRADE ENDOMETRIAL CANCER BY PRIMARY TUMOR FACTORS AND TREATMENT RECEIVED

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Objectives: The optimal adjuvant treatment strategy for FIGO Stage III, high-grade endometrial cancer (HEC) is currently unclear. Both chemotherapy (CT) and/or radiotherapy (RT) have been used. This study sought to determine the contribution of primary tumor factors (PTF) versus treatment received in recurrence outcomes.

Study Methods: This retrospective cohort study included all patients with stage III HEC treated at our institution (1999–2009). PTF (stage, histologic subtype, grade, lymphovascular invasion, extent of myometrial/cervical invasion, serosal/adnexal/parametrial/vaginal involvement, nodal status, margins) were assessed. Univariate analysis were performed using chi-square, recurrence-free survival utilized the methods of Kaplan and Meier, and multivariate analysis was performed using Cox proportional hazards modeling.

Results: There were 82 eligible patients (mean age 66) with surgical and pathologic stage III HEC (IIIA 38%, IIIB 7%, IIIC 55%). Sixty-nine (84%) received adjuvant treatment (CT 14 (17%), RT 26 (32%), CT/RT 29 (35%)). Median follow-up was 22 months with 48 recurrences. In univariate analyses, recurrence was associated with serosal involvement (p=0.04), positive margins (p<0.001), and histologic subtype (p=0.01). When controlling for PTF and treatment received, clear cell and carcinosarcoma histologic subtypes (HR 8.6 and 6.0) and cervical invasion (HR 3.7) were associated with increased recurrence risk, while treatment with CT or RT demonstrated decreased risk (HR 0.42 and 0.48).

Conclusions: When controlling for high-risk PTF and treatment received, PTF such as histologic subtype and cervical stromal invasion are associated with risk of recurrence, while adjuvant treatment with CT and/or RT may decrease risk.

■ O-OTH-CLI-FEL-001

RADIOLOGIC IMAGING PATTERNS OF GYNECOLOGIC PATIENTS: DOES PHYSICIAN SPECIALTY MATTER?

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Objectives: To study the patterns of imaging by gynecologists and non-gynecologists (family physicians and others) following a

pelvic ultrasound in women aged 45 and older, prior to a surgical intervention.

Study Methods: Provincial databases of health care utilization were linked to establish patterns of imaging and surgical outcomes between 2006 and 2008. Women 45 and older without any surgical or imaging history met the inclusion criteria for this study.

Results: 193,261 women met the inclusion/exclusion criteria; of those, 19,125 underwent a laparotomy. 18,632 women underwent surgery for a gynecologic indication. 87% of women had imaging initiated by a non-gynecologist with the reminder initially imaged by a gynecologist. Comparing percentages of further imaging incurred by patients as categorized by initial imaging physician, non-gynecologist vs. gynecologist, additional imaging differed as follows: repeat pelvic ultrasound 42% vs. 24%; abdominal ultrasound 30% vs. 12%; CT abdomen/pelvis 13% vs. 4%; MRI pelvis 4% vs. 1.5%. Time to surgery also increased in malignant cases based on imaging ordered: uterine malignancy mean time to surgery with pelvic ultrasound alone was 138 days vs. 213 days when CT scan and MRI was ordered; for malignant adnexal disease time to surgery increased from 100 days to 180 days ($p<0.001$).

Conclusions: There is an important discrepancy between gynecologists and non-gynecologists with regards to patterns of imaging involving gynecologic pelvic pathology. Educational interventions are needed to reduce potentially unnecessary imaging tests, which lead to treatment delay of serious underlying conditions including cancer.

■ O-OTH-CLI-MD-002

EFFECTIVENESS OF SPCD PLUS LMWH AS PROPHYLAXIS AGAINST VTE IN THE SURGICAL GYNECOLOGIC ONCOLOGY POPULATION

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Objectives: Clinical equipoise exists regarding the optimal prophylaxis against VTE in the surgical gynecologic oncology population. The objective was to determine if the VTE event rate is decreased in surgical gynecologic oncology patients with the addition of Sequential Pneumatic Compression Devices (SPCD) to pharmacologic prophylaxis (LDUH or LMWH).

Study Methods: A chart review of patients treated surgically by the division of gynecologic oncology at Western University was undertaken creating two cohorts: control cohort-patients receiving pharmacologic prophylaxis alone (standard prior to July 2008); and intervention cohort-patients receiving pharmacologic prophylaxis plus SPCDs (standard after August 2008). The DAD (discharge abstracting database) was searched to determine the VTE event rate during post-operative hospitalization. Our pharmacy database was searched to determine patients treated therapeutically with Heparin or LMWH for VTE. Descriptive statistics were used to compare cohorts.

Results: From January 2005 until July 2008, 1053 patients were prophylaxed prior to surgery with LDUH or LMWH. From August 2008 to present, 1245 patients were prophylaxed with LMWH and SPCD. Groups were similarly distributed in terms of age, surgical type (laparotomy versus laparoscopy), surgical length and diagnosis. The VTE event rate in the control cohort was 5.0% compared to an event rate of 5.9% in the intervention cohort.

Conclusions: The introduction of SPCD did not have the intended consequence of decreasing the VTE event rate. Further research is required to determine if SPCD in addition to pharmacologic prophylaxis decreases the VTE event rate in patients treated surgically by gynecologic oncologists.

■ O-OV-CLI-FEL-002

DOES SYMPTOMATIC RECURRENCE INFLUENCE PROGNOSIS IN EPITHELIAL OVARIAN CANCER?

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Objectives: The prognostic significance of symptomatic recurrence has been poorly studied. We compare survival outcomes in patients with symptomatic recurrences to asymptomatic recurrences diagnosed by CA125 / routine imaging after primary therapy.

Study Methods: All epithelial ovarian cancer patients with first progression were retrospectively reviewed from 2007–2009. Demographics, disease related and survival outcome data were abstracted from electronic medical records. Chi-square statistics were used for categorical variables. Cox regression was used to model overall survival adjusting for age, residual disease status, adjuvant therapy use, and presentation at time of first recurrence after primary treatment. Log rank statistic was used to compare survivals. All p values less than 0.05 were considered to be statistical significant.

Results: 100 patients with first recurrence were reviewed. Median age was 62yo. The majority had stage 3/4 disease with 70% having serous histology. First recurrence was diagnosed by CA125 elevation, clinical symptoms, and routine imaging in 60, 9, and 31 patients, respectively. Median follow up was 28.2 mos. The median progression free survival (PFS) was 16 mos. Symptomatic recurrence was not significantly predictive of overall survival compared to asymptomatic recurrence ($p=0.82$). Estimated median overall survival was 43.8 mos (95% CI 38.4–49.3) in asymptomatic versus 43.7 mos (95% CI 25.2–62.3) in patients with symptomatic clinical recurrences ($p=0.99$). Use of adjuvant intraperitoneal chemotherapy showed a trend towards improved overall survival (HR 0.47 95% CI 0.19–1.13 $p=0.09$).

Conclusions: Symptomatic recurrence at time of first progression is not associated with worsened overall survival.

■ O-OV-CLI-FEL-003

RESPONSE TO SECOND LINE CHEMOTHERAPY IN EPITHELIAL OVARIAN CANCER PATIENTS TREATED ON NEOADJUVANT CHEMOTHERAPY PROTOCOL

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Objectives: Response to second line chemotherapy at recurrence after completion of neoadjuvant chemotherapy has not been studied previously. We analyzed response to second line treatment stratified by primary treatment approaches.

Study Methods: Epithelial ovarian cancer patients with first diagnosed progression were retrospectively reviewed from 2007–2009. Patients' demographics, primary treatment received and response to second line therapy were abstracted from electronic medical records. Chi-square statistics were used for categorical variables. Logistic regression model was used to predict response to second line therapy using predictor variables: age, residual status, initial treatment and use of intraperitoneal (IP) chemotherapy. All p values less than 0.05 were considered to be statistical significant.

Results: 100 patients with first recurrence were reviewed. Median age was 61.7yo. The majority had stage 3/4 disease with 70% having serous histology. Twenty two patients were treated with adjuvant IP chemotherapy. Optimal residual disease was present

in 50 patients. Median follow up was 28.2 months. The median progression free survival (PFS) was 16 months. Response to second line chemotherapy was observed in 41 patients (41%). Use of neoadjuvant chemotherapy significantly increases the risk of non-response to second line therapy (OR 3.42; 95% CI 1.25–9.36; p=0.02). Adjuvant IP chemotherapy significantly decrease the risk of non-response to salvage therapy (OR 0.25; 95% CI 0.08–0.81; p=0.02).

Conclusions: Response to second line therapy can be significantly influenced by primary treatment administered. This should be factored into future trial designs examining the effectiveness of salvage therapy for recurrent epithelial ovarian cancer.

■ O-OV-CLI-FEL-004

DOES MODALITY OF ADJUVANT CHEMOTHERAPY ADMINISTRATION AFTER INTERVAL SURGICAL DEBULKING MATTER IN EPITHELIAL OVARIAN CANCER?

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Objectives: To study the role of intraperitoneal (IP) chemotherapy after neoadjuvant chemotherapy and interval surgical debulking.

Study Methods: All neoadjuvant treated epithelial ovarian cancer patients were retrospectively reviewed from 2007–2009. Demographics, disease related and survival outcome data were abstracted from electronic medical records. Chi-square statistics were used for categorical variables. Cox regression was used to model progression free survival adjusting for age, residual status, and use of IP chemotherapy. Log rank statistic was used to compare survivals between IP and IV treated patients after surgery. All p values less than 0.05 were considered to be statistical significant.

Results: 65 patients were reviewed. Median age was 63yo. The majority had stage 3/4 disease with serous histology. Optimal residual was achieved in 52% of patients. Half of these patients went on to be treated with IP chemotherapy. Median follow up was 26.2 months. Fifty one patients had progressed with the median progression free survival (PFS) of 14.5 months. Use of IP chemotherapy post interval debulking surgery was not significantly associated with PFS (HR 0.82; 95% CI 0.31–2.22; p=0.70). Estimated median overall survival was 37.8 mos (95% CI 29.9–45.7) in IV treated only versus 48.1 mos (95% CI 37.9–58.3) in IP treated patients (p=0.162).

Conclusions: IP chemotherapy was not statistically significant associated with survivals in neoadjuvant treated ovarian cancer in our early experience. The role of IP chemotherapy after neoadjuvant chemotherapy need to be further defined pending on the final mature result of OV 21 study currently accrual patients.

■ O-OV-CLI-RES-002

OPTIMAL DEBULKING RATES IN ADVANCED STAGE OVARIAN CANCER WITH MINIMAL EXTRAOVARIAN DISEASE ON IMAGING

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Objectives: Preoperative imaging is helpful in identifying patients with bulky extraovarian disease who are unlikely to be optimally debulked. The purpose of this study was to determine rates of optimal debulking in advanced ovarian cancer associated with minimal extraovarian disease on preoperative imaging.

Study Methods: This was a population-based retrospective cohort study of all women with stage IIIC/IV epithelial ovarian carcinoma in British Columbia from 2005–2008 who underwent primary debulking surgery. Pre-operative CA-125, preoperative imaging modality, imaging results, and intraoperative findings were compared by chi-square and Kruskal-Wallis tests according to debulking outcomes.

Results: There were 262 evaluable patients. Extrapelvic disease was better predicted with CT scan than ultrasound (chi-square; p<0.0001). Of 64 patients with a pelvic mass ± ascites without identifiable extrapelvic disease on CT scan, only 32 (50%) were optimally debulked. The proportions suboptimally debulked, optimally debulked to <1cm, and optimally debulked to microscopic residual were 52.6%, 33.8%, and 13.6%, respectively. Median preoperative CA-125 levels in these subgroups were different (595, 538 and 230, respectively, K-W test p=0.005), however, CA-125 was not helpful in predicting debulking outcome for individual patients. Of those with a pelvic mass ± ascites and CA-125 <35, only 60% were optimally debulked, whereas when CA-125 >1000, 56% were optimally debulked.

Conclusions: CT scan is more likely to predict extrapelvic disease than ultrasound in advanced ovarian cancer, however, optimal debulking rates are limited even when preoperative imaging studies suggest minimal extraovarian disease. Alternate diagnostic tests are needed to improve preoperative prediction of debulking outcomes.

■ O-OV-HPOL-MD-001

IS SALPINGECTOMY AN ACCEPTABLE ALTERNATIVE TO BILATERAL SALPINGO-OOPHORECTOMY FOR BRCA MUTATION CARRIERS?

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Objectives: Risk-reducing bilateral salpingo-oophorectomy (BSO) is advised for women with BRCA mutations, but there are adverse consequences of premature menopause. The majority of BRCA-associated ovarian cancers arise in the fallopian tube, therefore salpingectomy may be an alternative to BSO. We compared the costs and benefits of salpingectomy to BSO among BRCA mutation carriers.

Study Methods: We developed a Markov Monte Carlo simulation model to compare 3 risk-reducing strategies in women with BRCA mutations: (1) BSO; (2) bilateral salpingectomy, and (3) bilateral salpingectomy with delayed ooophorectomy. Net health benefits were measured in years of life expectancy and quality-adjusted life expectancy (QALYs), and primary outcome was the incremental cost-effectiveness ratio (ICER). The model estimated the number of future breast and ovarian cancers and cardiovascular deaths attributed to premature menopause in each of the strategies.

Results: BSO was associated with the lowest number of subsequent breast and ovarian cancers and the highest life expectancy, but more cardiovascular deaths compared to the other two strategies. Bilateral salpingectomy yielded a higher quality-adjusted life expectancy than BSO, with a favorable ICER of $1,725 per QALY. Bilateral salpingectomy with delayed oophorectomy yielded the highest quality-adjusted life expectancy but had an unfavorable ICER of $174,285 per QALY, compared to salpingectomy alone.

Conclusions: BSO offers the greatest risk reduction for breast and ovarian cancer among BRCA mutation carriers. However, bilateral salpingectomy yields a higher quality-adjusted life expectancy and is a cost-effective alternative to BSO in BRCA mutation carriers. Delayed oophorectomy after salpingectomy is prohibitively costly.

■ O-VUL-CLI-RES-001

SENTINEL LYMPH NODE MAPPING CAN REPLACE INGUINAL LYMPHADENECTOMY IN THE SURGICAL MANAGEMENT OF CANCER OF THE VULVA

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Objectives: To determine the detection rate, sensitivity and negative predictive value (NPV) of sentinel lymph node (SLN) mapping in patients with clinical early vulvar cancer.

Study Methods: We reviewed the medical records of 108 patients who had radical vulvar surgery with SLN mapping using lymphazurin and/or Technetium (TC99) from January 2001 to October 2011. On final pathology, the SLNs were ultra staged (6 levels with H&E + one level with immunohistochemistry).

Results: Lymphazurin alone was used in 14 patients, TC99 alone in 47 and both techniques combined in 47. At least one SLN was identified in 99.1% of cases (107/108). For the 46 patients with a "midline" tumour, bilateral SLN detection was evidenced in 73.9% and in one patient no SLN was identified. For the 62 who had a "lateral" tumour, an ipsilateral SLN was identified in 100%. Complete inguinal lymphadenectomy was performed after SLN excision in 90.7% of the patients. On final pathology, 25 patients (23.1%) had node metastasis. Of those, 7 (20.8%) were micrometastasis or isolated cancer cells. There was no false negative SLN. The sensitivity for the SLN to detect a lymph node metastasis was therefore 100% (25/25) and the NPV was also 100% (107/107).

Conclusions: In patients with vulvar cancer, SLN mapping is very reliable to detect inguinal node metastasis, specifically micro metastasis. These results, combined with others, confirm that, in the surgical management of vulvar cancer, it is safe to avoid complete inguinal lymphadenectomy when a SLN is detected and is negative.