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Racial Disparities in Patients with Stage IIIC Endometrial Cancer

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Materials/Methods: A retrospective chart review was performed on patients treated for high-risk histology, early-stage uterine cancer at our institution. Patients receiving adjuvant VCB +/- chemotherapy were included. Demographic and clinical data was collected. Descriptive statistics were used to summarize variables. Kaplan-Meier analysis was used to estimate the survival probabilities. For all time to event outcomes, univariate cox proportional hazard regression models were built for clinically correlated variables. A two-tailed $p<0.05$ was considered statistically significant.

Results: 77 patients with early-stage carcinosarcoma (23.4%), clear cell (35.1%), serous (40.3%) and neuroendocrine carcinoma (1.3%) of the uterus were reviewed. Median follow up was 43 months (range 7-117 months). 2yr and 5yr overall survival (OS), metastasis free survival (MFS) and progression free survival (PFS) were 95% and 92%, 95% and 90% and 91% and 82% respectively. Of the 9 patients (11.7%) that recurred, 2 patients (2.6%) had isolated vaginal cuff recurrences, 4 patients (5.2%) had isolated pelvic recurrences and 3 patients (3.9%) had both a local and distant failure. Of the 27 individual sites of recurrence, 21 (77.8%) were below the level of L4.

Conclusion: In patients with early stage, high risk histology endometrial cancer treated with adjuvant VCB +/- chemotherapy, the 2yr and 5yr PFS was 91% and 82% respectively. All patients that recurred had some component of pelvic failure.

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Understanding Anxiety in Patients Receiving Vaginal Brachytherapy for Endometrial Cancer

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Purpose/Objective(s): Vaginal brachytherapy (VBT) is standard adjuvant treatment after hysterectomy for a majority of women diagnosed with stage I endometrial cancer. Despite requiring only a few treatments with minimal toxicity, many women express significant anxiety regarding VBT. We sought to quantify and correlate patient's anxiety regarding VBT with demographic and clinicopathologic features to develop a future model to reduce treatment related anxiety.

Materials/Methods: With IRB approval, women ages 18-99 with stage I-II endometrial cancer, treated with VBT alone between 2014-2020 were surveyed. 185 women were identified excluding those with recurrent disease. Participants filled out surveys including: 1) a qualitative assessment of their experience with VBT and related anxiety/mood, 2) clinical factors survey identifying past medical history, 3) Hospital and Anxiety Depression Scale, 4) and demographics questionnaire. Pearson chi squared test was used to correlate presence of anxiety with demographics.

Results: Of the 75 women who completed all 4 surveys, 67% (n=50) reported fear or anxiety prior to receiving VBT and 11% considered not receiving treatment due to fear/anxiety. Of those, anxiety was related to pain in 62% (31), quality of life in 40% (20), bladder/bowel function in 38% (19) and sexual functioning in 16% (8), and other in 22% (11). 88% (44/50) who exhibited anxiety pre-treatment reported a reduction in anxiety post-treatment. 92% of patients were white. 69% were married and 9% never married. 24% were employed and 71% were retired or unemployed. 63% completed college or beyond and 37% had an annual income of >$80,000. 93% identify as heterosexual. 57% had stage IA, 33% IB, and 8% stage II. 53% reported previously taking medication for depression or anxiety. 20% had a HADS-Anxiety score $\geq$ 8, denoting anxiety. 83% were parous. Patients who completed higher education ($\geq$ college degree) and women with higher income (>$80,000/year) were more likely to experience anxiety compared to women with less education (74% vs 48%, p=0.02) and less income (82% vs 54%, p=0.016). Additionally, women with a HADS-A score $\geq$ 8 were significantly more likely to experience anxiety (93% vs 58%, p=0.01).

Conclusion: Nearly 70% of women receiving VBT report treatment related anxiety, primarily related to fear of pain. Women who are more educated, receive a higher income, and have a higher HADS-A score are more likely to experience anxiety. This data will be incorporated into a prospective trial using an educational tool to address and mitigate this anxiety.

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Racial Disparities in Patients with Stage IIIC Endometrial Cancer

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Purpose/Objective(s): To report the impact of race on clinical outcomes in patients with stage IIIC endometrial carcinoma (EC).

Materials/Methods: A retrospective multi-institutional cohort study was conducted across 13 Northern American academic centers and included patients with stage IIIC endometrial carcinoma (EC) who received both chemotherapy and radiation in an adjuvant setting. Overall survival (OS) and recurrence-free survival (RFS) were calculated by Kaplan-Meier method. Univariable and multivariable analysis were performed by Cox proportional hazard models for RFS/OS. Propensity score matching was used to estimate the effect of race on survival outcomes. Statistical analyses were conducted using statistical software.

Results: A total of 90 Black and 568 non-Black patients (83%) were identified with a median age at diagnosis of 62 (Interquartile Range (IQR) 55-70). Median follow-up was 45.3 months (IQR 24-71 months). Black patients were significantly older ($p<0.0001$), had significantly more non-endometrioid histology ($p<0.0001$), grade 3 tumors ($p<0.0001$) and were more likely to have >1 positive paraaortic lymph nodes (PALN) compared to non-black patients. The presence of lymphovascular space invasion (LVSI), depth of myometrial involvement, number of total nodes involved, adnexal and cervical involvement and stage were not correlated with race (all $p>0.1$). As for treatment type, chemoradiotherapy sequencing approach was not correlated with race and no difference in number of chemotherapy cycles between Black and non-Black patients ($p=0.32$) was observed. Black patients were more often treated with external beam radiation therapy (EBRT) (43.3% and 24%, respectively) while a higher proportion of non-black patients received both EBRT and vaginal cuff brachytherapy (VBT) (65% vs. 38 %) ($P<0.0001$) despite similar cervical involvement. The 5-year estimated OS and RFS rates were 45% and 47% compared to 77% and 68% for Black patients vs. non-black patients,

respectively (p<0.001). After propensity score matching, the 2 groups were well balanced for most of the covariates (age, histology, stage, grade, number of positive PALN, adnexal and cervical involvement) except for depth of myometrial invasion and radiation type. The estimated hazard ratios (HRs) of Black vs. non-Black patients were 1.613 (95% CI = (1.01, 2.575), p-value = 0.045) for OS and 1.487 (95% CI = (0.906, 2.440), p-value = 0.116) for RFS, indicating that Black patients have significantly worse OS. RFS differences did not reach statistical significance.

Conclusion: Compared to non-Black patients, Black patients have higher rates of non-endometrioid histology, grade 3 tumors and number of PALNs. After propensity score matching, Black patients had worse OS but no statistically significant difference in RFS. Racial disparities could be mitigated by better access to care, equitable inclusion on randomized trials, and identification of genomic/molecular differences to better tailor adjuvant treatment.

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Radiotherapy in Medically Inoperable Patients with Endometrial Carcinoma

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Purpose/Objective(s): Upfront radiotherapy with or without brachytherapy is considered standard of care for patients with endometrial carcinoma that are unable to undergo surgical intervention. Here, we compare the cancer-free (CFS), cancer-specific (CSS), and overall (OS) survival between patients with low-risk and high-risk endometrial carcinoma managed with definitive-intent radiation therapy.

Materials/Methods: This is a single-institutional retrospective analysis of medically-inoperable patients with biopsy-proven endometrial carcinoma managed with upfront, definitive radiotherapy at UMass Memorial Medical Center between May 2010 and October 2021. Fifty-five cases were included for analysis. Patients were stratified as low-risk endometrial carcinoma (LREC: Uterine-confined grade 1/2 endometrioid adenocarcinoma) or high-risk endometrial carcinoma (HREC: Stage III/IV and/or grade 3 endometrioid carcinoma, or any stage serous or clear cell carcinoma or carcinosarcoma). CFS, CSS, OS and grade ≥3 toxicities were reported for patients with LREC and HREC.

Results: Median age was 66 (range: 42-86) with median follow-up being 44 months (range: 4-135). Twelve patients (22%) were diagnosed with HREC. Six patients (11%) were treated with high dose rate (HDR) brachytherapy alone and forty-nine patients (89%) were treated with HDR brachytherapy and external beam radiation therapy (EBRT). Twelve patients (22%) were treated with radiation and chemotherapy. The 2-year CFS was 82% for LREC patients and 80% for HREC patients (log rank p = 0.0654). The 2-year CSS was 100% for both LREC and HREC patients. The 2-year OS was 92% for LREC and 80% for HREC patients (log p = 0.0064). There were no acute grade ≥3 toxicities. There were 3 late grade ≥3 toxicities due to endometrial bleeding and gastrointestinal side effects.

Conclusion: For medically inoperable patients with endometrial carcinoma, upfront radiotherapy provided excellent CFS, CSS and OS. CSS and OS were higher in patients with LREC than those with HREC. Toxicities were limited in both cohorts.

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Salvage Interstitial Brachytherapy for Treatment of Recurrent Endometrial Cancers in the Vagina: 7-Year Single Institution Experience

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Purpose/Objective(s): Interstitial brachytherapy (ISBT) is an effective, accepted treatment for vaginal recurrence of endometrial cancer (EC). This study reviews a large tertiary institution's experience and presents outcomes for recurrent EC in the vagina treated with ISBT.

Materials/Methods: Patients who underwent salvage ISBT for vaginal recurrence of EC from January 1, 2014 - August 31, 2021, were included. Patients with second primaries or distant metastases at diagnoses were excluded. Initial disease factors, treatment details, recurrence and salvage treatment details were recorded. Actuarial outcomes calculated include overall survival (OS), local (LF), nodal (NF), and distant failure (DF).

Results: Forty-two patients were included; median age was 67; most initial cancers were adenocarcinoma (81%; 34/42), grade 1 (43%; 16/37), and stage IA (62%; 24/39). Initial treatment included adjuvant external beam radiation (EBRT) (17%), vaginal vault BT (19%), EBRT plus vaginal vault BT (7%) and chemotherapy (12%). Median time from surgery to recurrence was 14 months. At recurrence, 19% (8/42) had lymph node involvement and 7% (3/42) distant metastases. For salvage, 26% (11/42) of patients received ISBT alone, 74% (31/42) EBRT plus ISBT and 29% (12/42) sequential chemotherapy. Thirty-nine cases used interstitial technique while 3 had interstitial technique then multichannel cylinder for remaining fractions. The most common prescription for salvage ISBT alone was 42 Gy in 6 fractions while in combination with EBRT was 21 Gy in 3 fractions. Mean ISBT HRCTV D90 was 37.56 Gy, mean dose to Rectum D2cc 27.42 Gy and Bladder D2cc 19.85 Gy. Mean ISBT and EBRT HRCTV D90 was 77.65 Gy, mean dose to Rectum D2cc 67. 46 Gy and Bladder D2cc 61.98 Gy. Median follow-up after salvage BT was 20 months (range: 0-84). For patients undergoing salvage EBRT and ISBT, 2-year OS, LF, DF was 85.6%, 24% and 37.6%, respectively. With salvage ISBT alone, 2-year OS, LF, DF was 83.3%, 16.7% and 54.3%, respectively. Four patients received repeat BT for second vaginal recurrence. One patient experienced grade 3/4 late toxicity of radiation proctitis and small bowel obstruction.

Conclusion: ISBT is an effective treatment for recurrent EC of the vagina, with acceptable toxicities. Salvage BT alone is an option for patients with previous or contraindication to pelvic radiation.

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Long-Term Results Following Use of Vaginal Electronic Brachytherapy in the Management of Endometrial Cancer

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Purpose/Objective(s): We evaluated long-term vaginal toxicity and disease outcomes in women treated with vaginal electronic brachytherapy (EBT) following surgical management of endometrial cancer.