11-2020

The Prognostic Impact of Time Interval Between Hysterectomy and Initiation of Adjuvant Radiation Treatment in Women With Early-Stage Endometrial Carcinoma

Simeng Zhu
Henry Ford Health, SZhu1@hfhs.org

Remonda M. Khalil
Henry Ford Health, RKhalil1@hfhs.org

Osama Altairy
Henry Ford Health, oaltair1@hfhs.org

Charlotte Burmeister
Henry Ford Health, CBURMEI2@hfhs.org

Irina Dimitrova
Henry Ford Health, idimitr1@hfhs.org

See next page for additional authors

Recommended Citation

Zhu S, Khalil R, Altairy O, Burmeister C, Dimitrova I, and Elshaikh MA. The Prognostic Impact of Time Interval Between Hysterectomy and Initiation of Adjuvant Radiation Treatment in Women With Early-Stage Endometrial Carcinoma. International Journal of Radiation Oncology Biology Physics 2020; 108(3):e472.

Authors

Simeng Zhu, Remonda M. Khalil, Osama Altairy, Charlotte Burmeister, Irina Dimitrova, and Mohamed A. Elshaikh

2005 to July. 2018. Adjuvant radiotherapy included external irradiation on pelvic area and brachytherapy to vaginal stump. Hormonal therapy and chemotherapy were administrated to some of the patients. Propensity-matched analysis (PSM) was used to eliminate group difference and Kaplan-Meier survival analysis was done to calculate survival.
Results: 132 patients with resected Low-grade endometrial stromal sarcoma were included in the analysis. The median age was 43 years and 90.8% of patients was premenopausal. Stage I and II accounted for most (76.0% and 19.4%, respectively), followed by stage III - IVA. Among all patients, 103 patients underwent bilateral oophorectomy and 5 patients underwent unilateral oophorectomy while the others preserved ovaries. Hormonal therapy was prescribed to 60 (45.5%) patients. A total of 32 (24.2%) patients received postoperative radiotherapy (RT group), while 100 patients did not receive adjuvant radiotherapy (no RT group). The two groups were comparable in age, tumor diameter, stage, menopausal status et al. However, proportion of hormonal therapy (68.8% vs. 38.0%, P = 0.002) and bilateral oophorectomy (90.6% vs. 74.0%, P = 0.048) in the RT group were significantly higher than those in the no RT group. The median follow-up time was 40.5 months. 32 patients relapsed (24.2%, including 22 cases limited to pelvic area, 6 cases relapsed in pelvic and abdominal area, 2 cases relapsed in pelvic area and lungs, 1 case relapsed in pelvic, abdominal area and lungs, 1 case to lungs) and 1 patient (0.8%) died during follow-up. For all patients, 1-year disease-free survival (DFS) was 90.6%, 3 yrs DFS was 79.0%, 5 yrs DFS was 71.2%. Univariate analysis showed that radiotherapy, menopausal status and bilateral oophorectomy significantly prolonged DFS. Postoperative radiotherapy reduced recurrence rate (12.5% (4/32) vs. 27.0% (27/100)). We then did a propensity-matched analysis to eliminate unbalanced factors in RT group and no RT group. A total of 64 patients were matched according to menopausal status, bilateral oophorectomy and hormonal therapy. Kaplan-Meier analysis showed significant improved DFS in RT group compared to no RT group (median DFS: not reached vs. 81monthes, p = 0.004). In terms of toxicity, there was no radiotherapy induced grade III-IV toxicity.
Conclusion: In patients with Low-grade endometrial stromal sarcoma after radical resection, postoperative radiotherapy showed significant improvement on DFS which emphasized importance of radiotherapy in ESS.
Author Disclosure: **W. Wang**: None. **X. Hou**: None. **K. Hu**: None. **F. Zhang**: None.

3065

The Prognostic Impact of Time Interval Between Hysterectomy and Initiation of Adjuvant Radiation Treatment in Women With Early-Stage Endometrial Carcinoma

S. Zhu,[1] R. Khalil,[1] O. Altairy,[1] C. Burmeister,[2] I. Dimitrova,[3] and M.A. Elshaikh[1]; [1]*Department of Radiation Oncology, Henry Ford Cancer Institute, Detroit, MI,* [2]*Department of Public Health Science, Henry Ford Cancer Institute, Detroit, MI,* [3]*Department of Gynecologic Oncology, Henry Ford Cancer Institute, Detroit, MI*

Purpose/Objective(s): Adjuvant radiation therapy (ART) is indicated for women with endometrial carcinoma (EC) who are at high risk for recurrence. However, due to various reasons, some patients do not receive ART in a timely manner. In this study, we evaluated the prognostic impact of the time interval (TI) between hysterectomy and starting date of ART.
Materials/Methods: After institutional review board approval, we queried our prospectively-maintained institutional database for women with uterine endometrioid EC of 2009 FIGO stages I-II who received ART without chemotherapy after surgical staging. The patients were classified into two groups, based on whether they received ART ≤8 weeks (group A) or >8 weeks (group B) after hysterectomy. We then compared the two groups with regards to the following survival endpoints: recurrence-free survival (RFS), disease-specific survival (DSS) and overall survival (OS). Univariate and multivariate analyses were also performed.
Results: A total of 460 patients were identified. Median follow-up duration was 70.5 months. The median age for the entire cohort was 66.0 years. The cohort consisted of 176 patients with FIGO stage IA (38%), 207 (45%) with stage IB and 77 (17%) with stage II. Group A consisted of 354 (77%) patients, and group B had 106 (23%). The median TIs from hysterectomy to ART were 6 weeks and 10 weeks for groups A and B, respectively. There was no statistically significant difference between the groups in terms of baseline demographic and disease characteristics including age, race, grade, FIGO stage, extent of myometrial invasion, presence of lymphovascular space invasion and radiation treatment modality. A total of 52 patients experienced recurrences. Patients in group A (vs. group B) experienced significantly less recurrences overall (9% vs. 18%; p = 0.01). Rate of vaginal recurrence was significantly lower in group A (9% vs. 42%, p = 0.01). Univariate analysis showed that having RT ≤8 weeks was associated with significantly improved 5-year RFS rate, which was 89% and 80% for groups A and B (p = 0.04), respectively. The rates of 5-year OS (86% vs. 85% for groups A and B, respectively) and 5-year DSS (93% vs. 93% for groups A and B, respectively) were similar. In addition, multivariate analysis showed a statistical trend for improved 5-year RFS when receiving RT ≤8 weeks (p = 0.07).
Conclusion: Our study suggests that delaying adjuvant radiation treatment beyond 8 weeks post-hysterectomy is associated with significantly more cancer recurrences for women with early-stage endometrial cancer.
Author Disclosure: **S. Zhu**: None. **R. Khalil**: None. **O. Altairy**: None. **C. Burmeister**: None. **I. Dimitrova**: None. **M.A. Elshaikh**: None.

3066

Dose-volume Parameters of Pelvic Functional Bone Marrows Predict Acute Hematological Toxicities during Intensity-Modulated Radiotherapy Concurrent With or Without Cisplatin for Cervical/ Endometrial Cancer: A Prospective II Study

H. Chen,[1] W. Deng,[1] Q. Zhong,[1] Y. Liu,[1] X. Ruan,[1] Z. Yu,[1] J. Chen,[1] D. Rao,[1] and L. Xiao[2]; [1]*Jiangmen Central Hospital, Jiangmen, Guangdong Province, China,* [2]*Jiangmen Central Hospital, Jiangmen, Guangdong Province, China*

Purpose/Objective(s): Pelvic functional bone marrow (FBM) has active hematopoietic capacity. Our hypothesis is that dose-volume parameters of pelvic FBM may predict the risk of hematological toxicity (HT) during chemoradiotherapy for cervical and endometrial cancer.
Materials/Methods: In this prospective phase II trial, 51 patients with cervical cancer and 13 patients with endometrial cancer were recruited from January 2017 to January 2020. All patients were treated with 5-7 fields IMRT. 44 patients were postoperative radiotherapy (45-50.4Gy/25-28 Fractions), 1 of them was concurrently boosted to 60 Gy/28 Fractions for parametrial positive margin, 3 of them were boosted with brachytherapy for vaginal positive margin. 20 patients were radical radiotherapy (50.4 Gy/28 fractions plus brachytherapy), 14 of them were concurrently boosted to 60 Gy/28 Fractions for pelvic positive lymph nodes. FBM1 and FBM2 were outlined in the condition of bone window. All patients received concurrent median 4 cycles (0-7 cycles) of cisplatin (40 mg/m^2 qw). The blood routine was reviewed weekly during chemoradiotherapy. The HT was evaluated according to the CTC4.0 criteria. The single and multi-factors methods were used to analyze the relationship between grade 3-4 HT and dose-volume parameters of FBM1, FBM2.
Results: The incidence of grade 3-4 leukopenia, neutropenia, thrombocytopenia, and hemoglobin a during chemoradiotherapy was 32.8%, 15.6%, 14.1%, and 20.3%, respectively, and the median occurrence time was 42th, 40th, 36th, and 42th day, respectively. Multivariate regression analysis showed Dmax of FBM1 was significantly associated with grade 3-4 leukopenia (OR = 1.483 95% CI 1.182 ~1.862), and V50 of FBM1 was significantly associated with grade 3-4 neutropenia (OR = 1.322 95%CI 1.014~1.724). Compared with patients without lymph node boost, patients with boost had a significantly higher risk of grade 3-4 neutropenia (40% vs. 8.2%, P = 0.008) and thrombocytopenia, (46.7% vs. 4.1%, P<0.001). Patients treated with radical radiotherapy had significantly higher risk of grade 3-4 hemoglobin a than those with postoperative radiotherapy (80% vs. 25 %, P <0.001). The significant risk factors for synchronous more than one blood cell type grade 3-4 suppression (namely