Hemoglobin A1c and the Relationship to Stage and Grade of Endometrial Cancer

Stevens E1,2, Yu S1, Van Sise MA2, Pradhan T1, Lee V1, Pearl ML2, Lee YC1, Abulaifia O1
State University of New York – Downstate Medical Center1 and Stony Brook Medical Center2

Endometrial cancer is the fourth most common malignancy in women, with an estimated 46,470 diagnoses and 8,120 deaths in 2011. Type 1 endometrial cancer has endometrioid histology and has identifiable risk factors including hypertension, obesity, diabetes mellitus, nulliparity and anovulation.

Hyperinsulinemia and impaired glucose metabolism have been hypothesized to increase the risk of many cancers, including breast, genitourinary, and gastrointestinal. In colon cancer, poor glycemic control, as measured by HgA1c, independently predicts a more aggressive clinical course.

To determine if elevated HgA1c in patients surgically staged for Type I endometrial cancer is related to a higher stage or grade at the time of diagnosis.

A retrospective chart review was performed from January 2000 – June 2010 at three academic medical centers. Patients were included in the study if they were diagnosed with endometrioid adenocarcinoma of the uterus, had a hemoglobin A1c performed within the three months prior to surgery, and were completely surgically staged.

618 patients were identified with endometrioid adenocarcinoma during the study period. Of these, 82 had an HgA1c measured within 3 months prior to surgery. The average age was 62 (range 34-86). Patients with Stage 1, Grade 1 carcinoma were significantly younger than patients with the same or higher stage, grade 2-3 tumors (age 57 vs 65; p = 0.002). The overall average HgA1c is 6.69 (range 4.4 – 12.8). There was no statistical difference between HgA1c levels in early stage versus later stage cancers. There was no statistical difference between HgA1c levels in low grade versus high grade tumors. No significance difference was found when stratifying by stage and grade together, despite a trend of increased mean HgA1c across increasing stages and grades (Stage 1, grade 1 HgA1c mean 6.74 vs Stage 3-4, Grades 2-3 mean of 7.69).

Elevated preoperative HgA1c does not appear to be related to a higher stage or grade at the time of diagnosis of endometrioid adenocarcinoma of the uterus.

Conclusion

Elevated preoperative HgA1c does not appear to be related to a higher stage or grade at the time of diagnosis of endometrioid adenocarcinoma of the uterus.

References

1. American Cancer Society