Anemia May Be Marker for Poor Cancer Outcomes

BY BRUCE JANCIN
Denver Bureau

DENVER — Anemia is probably a symptom rather than a cause of radiation-therapy failure in women with cervical cancer, Dr. Patricia J. Eifel asserted at the annual meeting of the American Society for Therapeutic Radiology and Oncology.

"In the past, I think the hypothesis that many have held is that anemia causes radiobiologically significant hypoxia. We would argue that, more likely, anemia is simply a surrogate for bad disease that's more advanced, biologically aggressive, or poorly responsive," said Dr. Eifel, a radiation oncologist at the University of Texas M.D. Anderson Cancer Center, in Houston.

"Putting it differently," she continued, "in the clinic we often conclude that severe anemia may cause a poor radiation response, and this for years has caused us to transfuse patients to keep their hemoglobin up. But one must also look at the question the other way—that a poor radiation response leads to continuous bleeding and severe anemia. … Bad tumors bleed."

She presented a massive retrospective study involving 2,988 patients with FIGO stage I or II squamous cell carcinoma of the cervix treated with radiation therapy (RT) alone at M.D. Anderson. Median follow-up was 14 years.

A poor radiation response may lead to continuous bleeding and severe anemia.

DR. EIFEL

Dr. Eifel analyzed the impact of seven clinical variables on key patient outcomes. Four variables were anemia-related: pre-RT hemoglobin (Hb) level, lowest Hb during RT, the occurrence of transfusion before RT, and transfusion during RT. The other three were descriptive tumor variables: FIGO stage, clinical tumor diameter, and clinical lymph node status. Tumor size was categorized both as a continuous variable and by placing the tumor into one of five size groups.

Each of the seven variables proved strongly associated with the risk of central disease recurrence, pelvic recurrence, distant metastasis, disease-free survival, and overall survival. However, patients with large tumors, positive nodes, or Stage IIb disease were significantly more likely to have low Hb and receive transfusions before and during RT. For example, the prevalence of an Hb level below 10 g/dL during RT was 32% among patients with tumors 6.0-6.9 cm, a rate more than twice that in patients with tumors 4.0-4.9 cm in diameter.

In a Cox multivariate logistic regression analysis, none of the four anemia-related measures were significantly correlated with overall survival, distant metastases, or the other patient outcome measures. Each of the tumor-related variables was.

Based on these data, she and her coinvestigators have become "a little slower" to transfuse patients, especially when the Hb drops below 10 g/dL only toward the end of treatment, Dr. Eifel said.

Dr. Eifel conceded other investigators have consistently found strong correlations between anemia during treatment and mortality, poor local/regional control, and distant metastasis. But their retrospective studies were relatively small and didn't account for tumor size. "They've either ignored it or in two cases dichotomized the variable using a threshold of 5 cm," she said.

But discussant Dr. Gillian M. Thomas wasn't convinced.

"Despite the fact that there are nearly 3,000 patients in this one data set, this conclusion contradicts the results of a lot of other studies across many solid tumor types—even tumors for which size is not important, such as laryngeal cancer. In fact, at last look there were 66 studies looking at the question of the importance of hemoglobin, and 82% of them showed hemoglobin was an adverse factor. In cervical cancer alone, 24 of 27 studies show it to be an adverse factor," said Dr. Thomas, head of radiation oncology at Toronto-Sunnybrook Cancer Centre.

She added she doesn't consider the M.D. Anderson results so compelling that she is willing to stop raising low Hb in an effort to improve outcomes in patients receiving chemoradiation. ■