Comment & Response

Comparative Effectiveness of Bevacizumab and Ranibizumab in the Comparison of Age-Related Macular Degeneration Treatments Trials

To the Editor In 2012, Martin et al1 published the results at 2 years of the Comparison of Age-Related Macular Degeneration Treatments Trials and found a nonsignificant difference between bevacizumab and ranibizumab according to the continuous end point of the change in letters of visual acuity (mean difference for bevacizumab vs ranibizumab, −1.4 letters; 95% CI, −3.7 to +0.8 letters; \( P = .21 \)). More recently, Ying et al2 carried out a multivariate analysis of the same study data in which the bevacizumab group was shown to have higher odds of losing 15 or more letters than the ranibizumab group (odds ratio, 1.83; 95% CI, 1.07 to 3.14; \( P = .03 \)).

If the crude rates of failures reported by Ying and colleagues are examined by univariate analysis (37 of 501 patients for bevacizumab vs 24 of 528 patients for ranibizumab), the odds ratio is 1.67 (95% CI, 0.99 to 2.84; \( P = .05 \)), which is very close in terms of magnitude and statistical significance to that obtained by multivariate statistics. Hence, while these univariate results and the results from the multivariate analysis are similar, they suggest the possibility of a different conclusion from the primary results of the Comparison of Age-Related Macular Degeneration Treatments Trials.1

In interpreting their results, Ying and colleagues postulated that, as compared with the previous results by Martin and colleagues, the more pronounced difference between bevacizumab and ranibizumab was related to the multivariate design of their analysis and to the consequent adjustment for covariates. However, the observation that univariate and multivariate results were similar suggests another explanation: the inferiority of bevacizumab vs ranibizumab could be a spurious result related to the adoption of a dichotomous end point in substitution for the continuous one.

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