Letter to the Editor

Statistical Analyses of Echocardiographic Predictors of Hemodynamics in Patients Supported With Left Ventricular Assist Devices

To the Editor:

The article by Grinstein et al[1] needs further clarification regarding the statistical analyses used. First, the authors report using linear regression analyses. A key assumption of linear regression analysis is independent observations.[2] The sample of Grinstein et al included 30 patients. However, they report that data were analyzed from a subset of 10 patients that had repeated measurements for a combined total of 102 measurements. The 102 measurements are not 102 independent observations. There are only 30 independent observations. Second, variance inflation factors are typically calculated to determine if there are any concerns of multicollinearity. Low values for variance inflation factor indicate absence of multicollinearity concerns while high values indicate multicollinearity concerns. A commonly accepted statistical approach is that values of $\geq$10 indicate multicollinearity concerns.[2] Some may possibly consider that values of $\geq$ 5 indicate multicollinearity concerns. Grinstein et al specifically write that they included parameters in their multivariate analysis only if the variance inflation factor was not significant as determined by a value $<$2.[1] That approach excludes parameters that may be very useful to include in a multivariate analysis. Third, they report calculating interobserver variability for diastolic slope and systolic slope by including information from 2 observers. It is unclear if the analyses for diastolic slope and systolic slope used data from one observer or data from both observers that were averaged and then analyzed. A rationale for choosing either of the approaches should be specified, because there are pros and cons for each approach.

Disclosures

None.

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References

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2. Fox J. Applied regression analysis, linear models, and related methods. Thousand Oaks, California: Sage; 1997.

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