CLINICAL PREDICTORS OF RESPONSE TO ECT IN SEVERE DEPRESSION

Sir,

I read with interest the article by Gupta et al. (2000, 60-65). The authors administered 6 electro-convulsive therapy (ECT), over 2 week period, in an uncontrolled open manner on a purposively selected sample of antidepressant naïve or antidepressant free patients (N=22) of Severe Depressive Episode with the objective to ascertain which of the selected socio-demographic and clinical variables could predict a good response (a priori defined as reduction of 60% or more from baseline in scores of Hamilton Depressive Rating Scale, HDRS) to ECT. Based on post hoc comparison between patient groups exhibiting good response (N=11) and not good response (N=11), employing Fisher's Exact test and Student T test, authors concluded that 3 variables, mentioned below, were associated with good response to ECT. I have following to state with regards to statistics applied in this study.

1. In statistical terminology, the variables under study are classed into Qualitative (Categorical) and Quantitative (Measured), while their frequency distribution is either Normal (Gaussian) or Nonnormal and inferential statistics applied to variables so distributed are called Parametric and Non-Parametric (Distribution Free) tests respectively. Therefore, terms like nonparametric variables, parametric variables or inappropriate distribution employed in the article are incorrect and should best be avoided.

2. The tabulated mean and standard deviation of clinical and HDRS variables, reproduced below, were compared by Student 't' test, a parametric test (variables with groups differing significantly, p<0.01, are depicted in bold). However, as is evident from below, all variables had large standard deviation (given in bold italics) in either or both (good response and not good response) groups respectively: (A) Clinical variables: 145.8 (93.84) and 385.5 (364.66) days for duration of index episode, and 4.5 (4.08) and 1.3 (1.90) months for average duration of past depressive episode (s); (B) HDRS variables: 2.2 (0.98) and 1.0 (0.89) for suicidal thoughts, 1.7 (1.19) and 2.2 (1.25) for retardation, 2.1 (1.64) and 1.4 (1.63) for agitation, and 1.7 (0.47) and 1.2 (0.60) for loss of appetite. Variables with large standard deviation (50% or more of their mean) do not follow normal distribution (Altman, 1991), and therefore employing a nonparametric test, instead of a parametric one, would have been more appropriate to obtain valid results.

3. Although the stated research objective was identifying the predictors of good response to ECT, the authors - possibly because of small sample size - did not attempt the requisite regression analysis, without which, statistically speaking, it is premature to label any variable as a predictor (Krishnamurthy et al., 1994).

The issue of whether variables so identified are predictor for response to any treatment or are specific to ECT alone can be resolved only by a randomized controlled trial. In this context, the strategy of employing post hoc tests to answer the question 'who will benefit most from this treatment?' has been criticized and is considered, at best, to be a kind of hypothesis generating, one. Even this approach, to be fruitful, requires detailed statement of a prior hypothesis, stratified randomization according to the stated characteristics and large sample size (Hotopf et al., 1999).

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