Title: Rating patterns identified during screening predict subsequent rating issues.

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The Methodological Question Being Addressed: Can analysis of patterns of symptom measurement during the screening phase identify erroneous raters?

Introduction: Blinded data analytics are a non-intrusive method of reviewing blinded clinical trial ratings aiming to identify rating patterns associated with increased non-specific variance, identical errors, placebo response and poor signal detection. In a post-hoc investigation we assessed whether discrepancies at the baseline visit between scales used for entry and efficacy, respectively, were predictive of errors in scoring after randomization.

Methods: Available baseline data from 1310 subjects were used to predict the PANSS scores given the BPRS ratings. As a PANSS discrepant subject we identified those subjects where the actual PANSS score differed from the predicted by more than 2 standard deviations. Using logistic and binomial regression we then estimated the odds and the incidence rate ratios of the following post-baseline data quality concerns: a) within PANSS logical inconsistencies; b) identical PANSS ratings; c) unusually large changes in PANSS from prior visit; d) erratic changes in PANSS; e) discrepancies between the change in CGI-S from baseline and CGI-I score; and f) discrepancies between the change in PANSS from baseline and CGI-I score comparing the group of PANSS discrepant subjects with those, who were not discrepant at baseline.

Results: The presence of baseline discrepancies between the BPRS and the PANSS scores significantly increased the odds and the incidence rate of the post-baseline large (OR = 1.95[1.15-3.32]; IRR = 2.39[1.55-3.69]) and erratic (OR = 4.58[2.03-10.34]; IRR = 4.33[1.69-11.07]) PANSS changes and of the discrepancies between the CGI-I score and change in CGI-S (OR = 2.76[1.65-4.62]; IRR = 2.51[1.41-4.49]) and PANSS (OR = 2.91[1.66-5.13]; IRR = 2.37[1.18-4.75]) scores from baseline. There was no effect of the presence of discrepancies between the BPRS and PANSSS at baseline on the post-baseline within PANSS logical inconsistencies and identical PANSS ratings.

Conclusions: At the baseline visit discrepancies between a conceptually related inclusion and efficacy instrument were predictive of numerous rating errors after randomization. This type of analysis may be automated and produce rapid results when incorporated into electronic clinical outcome assessments (eCOA). Rapid identification of such patterns allows for rater assessment and remediation prior to randomization, thus preventing post-baseline errors that may detract from signal detection.