Discrepancy between subjective and objective severity as a predictor of response to chronotherapeutics in bipolar depression

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Objectives

Chronotherapeutic techniques (sleep deprivation and light therapy) are effective treatments for bipolar depression, but viable predictors of response for the daily clinical practice have not yet been established. The discrepancy between the subjective and objective severity of depressive syndromes has been proposed as a possible predictor of treatment outcome in depression[1]. This study examined whether this discrepancy can be used to predict response to chronotherapeutics in bipolar depression.

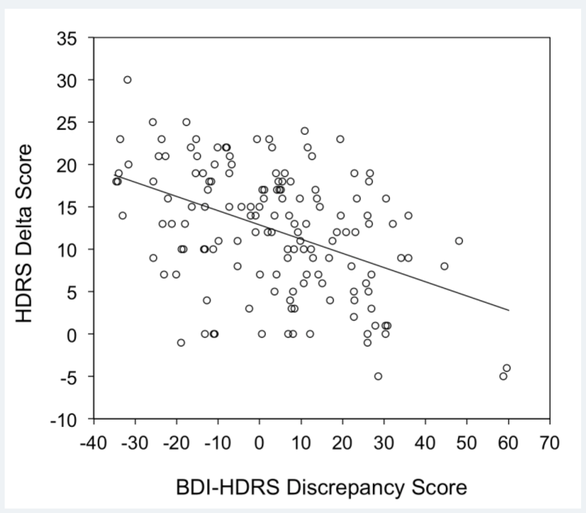
Methods

- We studied 149 consecutively admitted inpatients with bipolar disorder type I who had a major depressive episode without psychotic features.
- Patients were administered three consecutive total sleep deprivation cycles (each cycle comprised a 36-hour period of wakefulness) combined with bright light therapy in the morning for 1 week.
- The severity of depression was evaluated using self-rated (Beck Depression Inventory: BDI) and observer-rated (Hamilton Depression Rating Scale: HDRS) measures.
- The BDI-HDRS discrepancy score was calculated by the following formula:
  (BDI score on day 0) / (39, maximum score of the BDI) × 100
  - (HDRS score on day 0) / (63, maximum score of the HDRS) × 100.
- Depressive cognitive distortion was rated using the Cognitions Questionnaire (CQ) .
- Associations of the BDI-HDRS discrepancy with clinical response and with depressive cognitive distortion were examined.

Results

Among the 147 patients who completed the treatment cycles, 66% responded to treatment (≥50% reduction in the HDRS score).

1. The BDI-HDRS discrepancy and clinical improvement



The BDI-HDRS discrepancy was negatively associated with the HDRS delta score*: the higher the discrepancy score, the smaller the clinical improvement (r = -0.44, $p < 0.001$) .

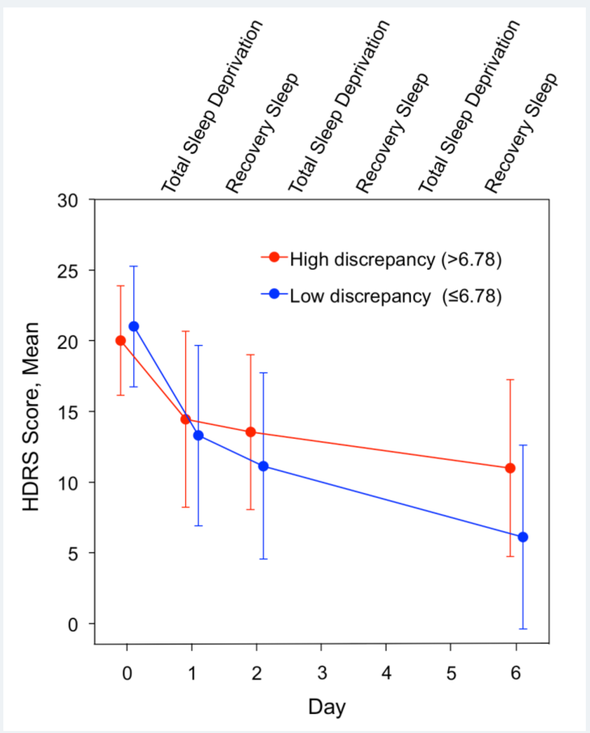
*Difference between the HDRS scores at baseline (day 0) and on day 6.

Fig. 1. Correlation between the BDI-HDRS discrepancy and delta HDRS.

Results (continued)

2. Low discrepancy group vs. high discrepancy group

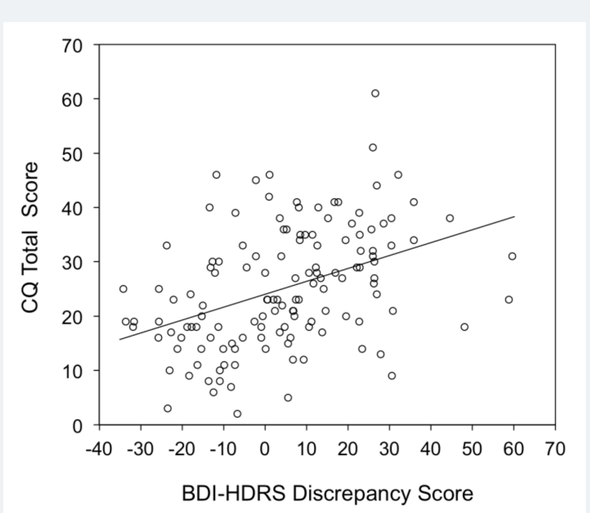
The receiver operating characteristic (ROC) analysis revealed that the optimal cut-off point of the BDI-HDRS discrepancy for response on day 6 was 6.87 with the area under the curve being 0.68.



- The response rates in patients with low discrepancy scores (≤6.78) and in patients with high discrepancy scores (>6.78) were 80.2% and 48.5%, respectively ($\chi^2 = 16.4$, $p < 0.001$).
- A low BDI-HDRS discrepancy (≤6.78) predicted response to treatment with an odds ratio of 3.8 (95% CI = 1.6 - 8.9).

Fig. 2. Time courses of the mean HDRS scores in the two groups based on the ROC-derived cut-off point of the BDI-HDRS discrepancy score.

3. BDI-HDRS discrepancy and cognitive distortion



The BDI-HDRS discrepancy was positively associated with cognitive distortion (r = 0.41, $p < 0.001$).

Fig. 3. Correlation between the BDI-HDRS discrepancy score and CQ total score.

Conclusions

- A larger BDI-HDRS discrepancy can predict poorer response to chronotherapeutics (sleep deprivation and light therapy) in bipolar depression.
- Cognitive distortion was reported to associate with the chronicity of depression[2]; therefore, it might be a mediator between the BDI-HDRS discrepancy and response to chronotherapeutics.

References

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