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ABSTRACT

Symptom Variability in Medication-Naïve Patients with Major Depressive Disorder as a Proxy to Predict Response to Treatment

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Background: Major Depressive Disorder (MDD) is characterized by episodes of low mood and loss of interest for two or more consecutive weeks. It is considered to be the leading cause of morbidity and mortality worldwide. Only 30% of patients with MDD achieve full remission after treatment with antidepressants, psychotherapy or neuromodulation. It is unknown whether response to treatment depends on the baseline expression of MDD symptoms among patients.

Objectives: In this study, we examined whether MDD symptom expression at diagnosis can predict response to selective serotonin reuptake inhibitors (SSRIs) in medication-naïve patients

Methods: We evaluated 34 medication-naïve patients with MDD upon diagnosis and 4-6 weeks after receiving treatment with SSRIs. Similarly, we tested 12 matched healthy controls twice with a 4–6-week gap (no SSRI treatment). We established the MDD diagnosis based on the structured results of the mini-international neuropsychiatric interview (MINI). All subjects were administered the Beck depression inventory II (BDI-II), a 21-question survey that evaluates the



severity and type of MDD symptoms. We assessed response to treatment based on the MINI and BDI-II results. We categorized MDD symptoms into two classes: somatic reflecting physical symptoms and non-somatic highlighting to psychic symptoms.

Results: At diagnosis (baseline), the severity of somatic, but not non-somatic, MDD symptoms was significantly lower in future responders (before treatment). After treatment with SSRIs, non-somatic symptoms were significantly remediated more than somatic symptoms. Non-responders exhibited the opposite pattern, with reduction in somatic symptoms. Machine learning classifiers using baseline MDD symptoms distinguished future responders and non-responders with 97% accuracy.

Conclusion: Our initial findings suggest that responders and non-responders express different MDD symptoms before and after treatment. This can be utilized to predict future response to SSRIs and lead to patient-centric treatment protocols for MDD.

Research Keywords: Major depressive disorder, selective serotonin reuptake inhibitor, treatment response prediction, somatic symptoms, non-somatic symptoms, machine learning.