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Discovery of Serum Biomarkers Predicting Development of a Subsequent Depressive Episode in Social Anxiety Disorder

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Introduction: Social anxiety disorder (SAD) is a strong risk factor for the development of depressive disorders (major depressive disorder or dysthymia).

Aims: Identification of blood-based molecular predictors of a subsequent depressive episode in SAD.

Objectives: To screen SAD patient serum for biomarkers which predict the onset of depressive disorders over a 2-year follow-up period.

Methods: Multiplexed-immunoassay data obtained from 143 SAD patients without co-morbid depressive disorders, recruited within the Netherlands Study of Depression and Anxiety (NESDA), were investigated. The serum screen included 165 mainly immunological, metabolical and hormonal analytes. Predictive performance of identified biomarkers and clinical variables (e.g. Beck Anxiety Inventory) was assessed using receiver operating characteristics curves (ROC) and represented by the area under the ROC curve (AUC). Stepwise logistic regression was used to select an optimal set of patient parameters, combining predictive serum analytes and clinical variables.

Results: A set of four serum analytes and four associated clinical variables reached an AUC of 0.86 for the identification of SAD individuals, who developed a subsequent depressive episode. Throughout our analyses, biomarker panels yielded superior discriminative performance compared to clinical variables alone.

Conclusions: We report the discovery of a serum marker panel with good predictive performance to identify SAD individuals prone to develop depressive disorders in a naturalistic cohort design. Furthermore, we emphasise the importance to combine biological markers and clinical parameters for disease course predictions in psychiatry. Validated biomarkers could help to identify SAD patients at risk of a depressive episode, thus facilitating early treatment and improving clinical outcome.

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