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AI-driven adaptive treatment strategies in internet-delivered CBT

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Introduction: Adaptive Treatment Strategies warns therapists of patients at risk of treatment failure to prompt an adaption of the intervention. Internet-delivered Cognitive Behavioural Therapy (ICBT) collects a wide range of data before and during treatment and can quickly be adapted by adjusting the level of therapist support.
Objectives: To evaluate how accurate machine learning algorithms can predict a single patient's final outcome and evaluate the opportunities for using them within an Adaptive Treatment Strategy.
Methods: Over 6000 patients at the Internet Psychiatry Clinic in Stockholm receiving ICBT for major depression, panic disorder or social anxiety disorder composed a training data set for eight different machine learning methods (e.g. k-Nearest Neighbour, random forest, and multilayer perceptrons). Symptom measures, messages between therapist and patient, homework reports, and other data from baseline to treatment week four was used to predict treatment success (either 50% reduction or under clinical cut-off) for each primary symptom outcome.
Results: The Balanced Accuracy for predicting failure/success always were significantly better than chance, varied between 56% and 77% and outperformed the predictive precision in a previous Adaptive Treatment Strategy trial. Predictive power increased when data from treatment weeks was cumulatively added to baseline data.
Conclusions: The machine learning algorithms outperformed a predictive algorithm previously used in a successful Adaptive Treatment Strategy, even though the latter also received input from a therapist. The next steps are to visualize what factors contributes most to a specific patient's prediction and to enhance predictive power even further by so called Ensemble Learning.

Disclosure: No significant relationships.
Keywords: Adaptive Treatment Strategy; machine learning; prediction; Internet CBT

Evidence-based family interventions in perinatal psychiatry

S0049

Development and efficacy of a psychoeducational family intervention for perinatal depression

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Abstract Body: The perinatal period represents an at-risk period for mental health consequences, which has been overlooked for long time. Perinatal mental health problems constitute a relevant threat for long-term mental health, not only for the direct impact on the affected women, but also for the considerable foetal/infant morbidity and mortality. Perinatal mental disorders are associated with negative outcomes in the newborn, including an increased risk of premature delivery and infant mortality, as well as a higher prevalence of mental disorders in the offspring (e.g., attention deficit or anxiety disorders). Depressive disorders represent the most common disorder during the perinatal period. For the adequate, appropriate and complete management of women with perinatal depression, there is the need for integrated interventions, following a comprehensive global assessment of women's mental health. In particular, the management of depression during perinatal period requires special attention, even considering the problems and limitations in prescribing pharmacological drugs. In this context, psychoeducational interventions are effective in reducing affective symptoms and the levels of stress, with low costs for the mental health department.

Disclosure: No significant relationships.

S0050

Perinatal psychiatry and families' mental health: Evidence from some french graduated and integrated practices

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Abstract Body: The first years of life represent a crucial period for psycho-affective development - the critical first 1000 days - because the events that happen to infants and babies during this period have psychosocial as well as epigenetic repercussions, with potential consequences throughout life and even for generations to come. The interactive circle that will develop between the skills (and/or vulnerabilities) of infants and parents and the interactive features arising from each triad, must be supported by perinatal mental health policies, of which the joint care of parents and infants in perinatal psychiatry is a pivotal element. It is necessary to develop care pathways, with systems integrated into "usual" care that take into account families from the prenatal or even pre-conceptual period to the postnatal period,
Joint care must also be scalable and thus encompass everything from parent-child psychotherapy to joint mother-baby hospitalisation. This intervention will present and discuss an example of a graduated, integrated and coordinated system of care, and will open up the perspective that perinatal clinicians must bear in mind that joint care is above all "a way of doing things", based on the notions of multidisciplinarity and prevention.

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