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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 multidisciplinary and prevention.

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S0051

What is the role of video feedback in supporting parents experiencing mental health problems?

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Abstract Body: Parental mental health problems have been found to have a significant impact on a range of aspects of parental caregiving during the postnatal period, with significant implications in terms of key aspects of the child's development. Video feedback is a generic term that refers to the use of videotaped interactions of the parent and child to promote parental sensitivity, and a recent meta-analysis of 20 studies (1757 parent-child dyads) found that video feedback can improve parental sensitivity compared with a control or no intervention up to six months' follow-up. This paper will examine the ways in which video feedback might contribute to the ability of parents with mental health problems to provide the type of caregiving that will promote the development of a secure attachment in the infant.

Disclosure: No significant relationships.

S0052

Family healing: Contextual interventions in perinatal clinical practice

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Abstract Body: In perinatal clinical practice (PCP), the focus of care has shifted from the mother and then the baby-mother dyad to the emphasis on the role of fathers. Individual and therapeutic interventions are multimodal, and in almost all cases interdisciplinary cooperation is assumed. The preferred therapeutic methods for perinatal mental disorders are psychological and psychotherapeutic interventions. Through the life-course model, the central, therapeutic-conceptual role of the family can be understood, which - in clinical practice - reflects the need for "think-family" in psychiatric care. Hence there is a growing need for evidence-based family-interventions. Parental mental health disorders may have an impact on family functioning and partner relationship, as well as parent-child interactions, the quality of attachment and relationship with the child. Even though we have an increasing number of evidence regarding the aims and effectiveness of family interventions, additional evidence is needed to determine what interventions and modalities are effective in the perinatal period. And we also need information when these interventions are contraindicated and regarding their risk. It is conceivable that there is not much difference between the efficacy of family intervention methods used

in other indications and the perinatal application of the same methods. We have gathered evidence primarily on perinatal depression, which opens the path of family interventions in other disorders. When thinking in the family as a general framework, it should be filled with evidence-based quantitative and qualitative anchors. The conceptual framework can be based on systems- and network theory. The presentation is illustrated with clinical vignettes.

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Epigenetic and metabolic mechanisms of brain plasticity for personalised interventions in neuropsychiatric disorders

S0055

Neuropeptide y and neuropeptide s in major depressive disorder and post-traumatic stress disorder: Preclinical and clinical studies

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*MDD is the predominant cause of "Years of life lived with disability" and "Years of life lost because of premature death" as a consequence of the disorder per se, comorbidities (cardiovascular, diabetes) and the high suicide rate. The problem is increasing due to higher depression frequency with age and growing life-longevity. One third of patients do not respond adequately to conventional therapies and "more of the same" drugs will not solve the problem. Consequently, there exists a crucial need to develop treatments with different modes of action. *Neuropeptide Y (NPY) and neuropeptide S (NPS) have been mapped in brain of MDD and PTSD rodent models. NPY is reduced in genetic and environmental depression models and in PTSD and can be reversed by antidepressants. These findings are parallel to the decreased NPY in humans diagnosed with MDD and PTSD. *NPS found in locus caeruleus regulates anxiety and stress-related behaviors and intranasal administration is anxiolytic in rat. The intranasal effects in humans are being explored. *Based on known biology and our findings, we hypothesized that NPY could be a target for MDD and PTSD, the reasoning being analogous to insulin treatment in insulin deficient diabetes, and conducted - the first ever - double blind, placebo controlled trials of insufflated NPY in MDD and PTSD (Sayet et al 2018, Mathé et al 2020). In conclusion, intranasal NPY is opening a promising new avenue for efficient, fast acting treatment of MDD and PTSD. Support: The Swedish MRC #10414; Center Psychiatry Research-KI, The Torsten Söderbergs Stiftelse

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Keywords: Depression; Treatment; Neuropeptide y; intranasal