University Hospital
of Psychiatry Zurich

6th Burghölzli Psychiatry Meeting 2022

Thursday, 10.11.2022

Abstracts

Content

Topic C: Basic Clinical Research

Topic D: Clinical Trial Research

Program

Lecture Hall Z1 03, Lenggstrasse 31

13.30 **Welcome adress**
Prof. Dr. Susanne Walitza, Prof. Dr. Erich Seifritz, Prof. Dr. Christopher Pryce

13.45 **Young scientist session 1**
Chair: Prof. Silvia Brem, Dr. Nathalie Brackmann

Miriam Rabl, MD (Department of Geriatric Psychiatry, PUK)

Blood plasma protein profiles of neuropsychiatric symptoms and related cognitive decline in older people

Michelle Loher, MSc (Jacobs Center for Productive Youth Development)

Tobacco Use, Cannabis Use, Self-Control, and Violence: Disentangling Relations from Early Adolescence to Early Adulthood

Mauro Mey, MSc (Department of Forensic Psychiatry, PUK)

Risk factors and motives of absconding in a forensic facility - a case control study

Dr. Hanne Scheerer (Department of Psychiatry, Psychotherapy and Psychosomatics, PUK)

Oral Prolonged-Release Ketamine in Treatment-Resistant Depression - a Double-Blind Randomized Placebo-Controlled Multicenter Trial of KET01, a Novel Ketamine Formulation

15.00 Coffee break and poster presentations (Z0 03)

16.20 **Dr. Anke Maatz,** (Department of Psychiatry, Psychotherapy and Psychosomatics, PUK)

How to implement participatory research at the ZPF: a trialogical proposal

16.35 **Young scientist session 2**
Chair: Prof. Dr. Birgit Kleim and Prof. Dr. Julius Popp

Dr. Dorothea Floris (Methods of Plasticity Research, Department of Psychology, UZH)

Linking structural and functional imaging modalities to characterize face processing in autism

Dario Bachmann, MSc (Institute for Regenerative Medicine, UZH)

Lifestyle affects amyloid burden and cognition differently in men and women

Christina Lutz, MSc (Department of Child and Adolescent Psychiatry, PUK)

Altered audiovisual congruency effect in late but not early ERP time windows for pupils with typical and poor reading skills

Dr. Josua Zimmermann (Department of Psychiatry, Psychotherapy and Psychosomatics, PUK)

White matter alterations in chronic MDMA use: Evidence from diffusion tensor imaging and neurofilament light chain blood levels

17.50 Short break

18.00 **Keynote lecture**

Chair: Prof. Dr. Boris Quednow

Prof. Dr. Nikolai Axmacher (Department of Neuropsychology, Ruhr University Bochum)

Memory Traces for Stressful and Traumatic Events

18.45 ***Awarding of the poster prizes***

Chair Prof. Dr. Boris B. Quednow and Prof. Dr. Reto Huber

19.00 Apéro riche (Z0 03)

Poster Abstracts

Topic A: Animal Models or Cellular and Molecular Psychiatry

Nr: ***1A***

PSILOCYBIN EFFECTS ON NEURONAL AND BEHAVIOURAL PLASTICITY IN MICE

J. Albiez, J. Romanos, H. Sigrist, G. Poggi, F. Vollenweider, C. Pryce

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Introduction

Psilocybin is a 5-HT2A receptor agonist, hallucinogen, and putative antidepressant. In animals, psilocybin increases glutamate neuron synapse formation in the prefrontal cortex (PFC). To increase understanding of its neuro-behavioural effects, psilocybin was studied in mice, under basal conditions and after chronic stress, with respect to PFC synapse formation and Pavlovian aversion memory.

Methods

1. (a) Healthy mice received 1x per os psilocybin or vehicle; the brain was collected for immunostaining of glutamate-neuron synaptic proteins, VGLUT1 and HOMER1, and analysis of their colocalization (= synapses). (b) Mice underwent Pavlovian aversion learning, psilocybin/vehicle injection, and aversion memory testing.
2. Mice underwent chronic social stress (CSS) or control handling (CON), Pavlovian aversion learning, psilocybin/vehicle injection, aversion memory testing, and PFC synaptic-marker immunostaining.

Results

1. In healthy mice: (a) Psilocybin increased colocalized VGLUT1-HOMER1 immunostaining in PFC. (b) Psilocybin was without effect on Pavlovian aversion memory.
(2) CSS increased Pavlovian aversion learning and memory relative to CON mice. Psilocybin decreased Pavlovian aversion memory in CSS mice, but CSS prevented psilocybin-induced increase in PFC synapse formation.

Discussion

This study demonstrates that: (1) Psilocybin increases PFC synapse formation in healthy mice, and (2) reduces excessive aversion memory in stressed mice but in the absence of increased PFC synapse formation.

Nr: ***2A***

SEX SPECIFIC BLOOD BASED METOBOLITES PREDICTIVE OF ALZHEIMER'S DISEASE

Christopher Clark[1], Endre Laczko[2] and Julius Popp[1,3,4]

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Introduction
Readily accessible diagnosis tools are crucial for early and accurate detection of Alzheimer's disease (AD). Here, we sought to identify peripheral metabolism blood-based biomarkers to predict the presence of cerebral AD pathology.

Methods
Untargeted metabolomics quantified 2286 metabolites in serum samples from participants with or without cognitive impairment in a memory clinic setting. ROC analysis selected metabolites associated with the presence of AD pathology, as indicated by a CSF AD profile. OPLS-DA was used to assess the ability of these biomarkers to predict AD. Pathway analysis was used to relate biological pathway alterations to AD

Results
No biomarker signature for AD was found in the whole cohort. Stratification according to sex allowed the identification of 14 (in males) and 9 (in females) biomarker candidates associated with AD. A model built with these candidates reached 80% prediction accuracy in males (60% in females). Twelve out of 13 associated pathways alterations, including arachidonic acid and tryptophan metabolism, have previously been observed in the CNS in AD.

Discussion
Sex specific peripheral metabolism biomarkers can be useful to predict cerebral AD pathology and detect related metabolic alterations. This highlights the need for personalised diagnostic and interventions in AD.

Nr: ***3A***

NUROMETABOLISM OF THE PSYCHOTROPIC AYAHUASCA-CONSTITUENTS N,N-DMT AND HARMINE AND THEIR EFFECT ON CEREBRAL GLUCOSE UPTAKE AND 5-HT $_{2A}$ RECEPTOR ACTIVITY IN RODENTS.

Klemens Egger[1), 2)], Paul Cumming[3) ,4)], Mikael Palner[3), 5), 6)], Boris B. Quednow[1), 2)], Milan Scheidegger[1), 2)]

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2) Neuroscience Center Zurich, University of Zurich and Swiss Federal Institute of Technology Zurich
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Introduction
Ayahuasca refers to a plant-based decoction with psychoactive effects that are attributed to *N,N*-dimethyltryptamine (DMT) and harmine which is needed to facilitate the uptake of DMT into the brain. Effects of psychedelic substances on brain energy metabolism and *in-vivo* receptor affinities are under-researched.

Methods
24 male rats received either vehicle, DMT, harmine, or a combination of both. Rats then received [^{3}H]-ketanserin to determine serotonin 5-HT$_{2A}$ receptor competition against DMT *ex-vivo*. [^{18}F]-FDG was administered after ketanserin for PET scanning of glucose metabolism during acute substance effects.

Results
Co-administration of harmine prolonged retention of DMT in the brain. DMT could not be shown to competitively bind to the 5-HT$_{2A}$ receptor. PET results did not show significant between-group differences of glucose consumption in the rodent brain; however, trends were seen in hippocampus and thalamus.

Discussion
Chemical analyses of brain extracts support the prediction that harmine potentiates cerebral uptake of DMT. Results from ketanserin competition are not in line with the idea that DMT unfolds its effects via this receptor with the administered dose. The sample size was too small for PET results to be significant. The present study serves as a pilot study that leads to improved experiments to solidify current results.

Nr: ***4A***

SOCIAL-STIMULUS RESPONSIVE NEURONS IN THE MOUSE BASAL AMYGDALA-NUCLEUS ACCUMBENS PATHWAY

Giulia Poggi[1)], Redas Dulinskas[1)], Lorraine Madur[1)], Giorgio Bergamini[1)], Alexandra Greter[1)], Christian Ineichen[1)], Amael Dagostino[1)], Diana Kúkeľová[1)], Hannes Sigrist[1)], Klaus Bornemann[2)], Francesco Fernandez-Albert[3)], Gregorio Alanis-Lobato[3)], Bastian Hengerer[2)], Christopher Pryce[1)]

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Introduction

Many basal amygdala (BA) glutamate neurons project to nucleus accumbens (NAc) and respond to rewarding and aversive stimuli. Yet, how they do so and whether they are di- or mono-valence remains unclear, especially regarding the social domain.

Methods

After retrograde tracing of BA-NAc neurons, *wild-type* male mice were exposed to either social reward (SR) or social aversion (SA) and immunostained for c-Fos. Similarly, after labelling of BA-NAc neurons, *c-Fos-TRAP2xAi14* male mice were exposed SR (or SA), administered 4-hydroxitamoxifen to induce c-Fos-dependent expression of tdTOMATO, then exposed to SA (or SR) and immunostained for c-Fos. Calcium-based fibre-photometry provided insights into the related BA-NAc neurons activity. Transcriptome analysis was performed on BA-NAc neurons collected via laser capture microdissection.

Results

A relatively high number of intermediate BA-NAc neurons expressed c-Fos after SR or SA, while posterior BA-NAc neurons exclusively after SA. Intermediate and posterior BA-NAc neurons differed in their transcriptomes. In intermediate BA-NAc neurons, “social neurons” were preferentially mono-valence. The related calcium-peak frequency was higher during social than non-social periods and calcium-peak size was consistent across stimulus phases and peak types.

Discussion

These findings provide novel evidence of the BA-NAc pathway responsiveness to emotionally salient (social) stimuli and deliver essential insights for elucidating reward/aversion psychopathologies.

Nr: ***5A***

CHRONIC SOCIAL STRESS IMPAIRS REWARD RESPONDING COINCIDENT WITH SPECIFIC DEFICITS IN NUCLEUS ACCUMBENS DOPAMINE ACTIVITY IN MICE

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Introduction

Several common stress-related neuropsychiatric disorders present with deficient reward processing and dysfunction in the mesolimbic dopamine (DA) circuit. In mice, using dopamine sensors and fibre photometry to quantify regional DA activity with high spatial and temporal resolution, we investigated the effects of chronic social stress (CSS) on reward behaviour and simultaneous nucleus accumbens (NAc) DA activity.

Methods

Mice were injected in the NAc with a viral vector encoding a GRAB-DA sensor and implanted with an optic fibre. Following recovery and expression, mice underwent 15 days of CSS or control handling (CON), followed by testing of discriminative reward learning memory (DRLM) and reward-to-effort valuation (REV), and simultaneous NAc DA fibre photometry, with sucrose as reward.

Results

In the DRLM test, CSS mice had a lower learning ratio that was coincident with decreased NAc DA activity during the discriminative stimulus and sucrose collection. In the REV test, CSS mice attained a lower final progressive ratio coincident with decreased NAc DA activity during the reward anticipation phase.

Discussion

This study demonstrates that CSS-induced reductions in DRLM and REV behaviours co-occur with specific, event-related deficits in NAc DA activity. This model is being applied to investigate CSS effects on the mesolimbic DA circuit, and pharmacological reversal of stress-induced pathologies of specific reward processes.) are the only instance in which AD can be diagnosed in a living person before symptoms have occurred. AD-FAD mutations have been identified in three genes (APP gene, presenilin 1 and presenilin 2 gene). The neuropathological and clinical features re- semble the typical picture of sporadic Alzheimer Disease.

Poster Abstracts

Topic B: Neuroimaging

Nr: ***1B***

LIFESTYLE AFFECTS AMYLOID BURDEN AND COGNITION DIFFERENTLY IN MEN AN WOMEN

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Indroduction

This work aimed to disentangle the influence of sex on the relationships between lifestyle factors, brain amyloid burden, and cognition.

Methodes

We studied 232 elderly individuals aged 50-89 who completed ^{18}F-Flutemetamol amyloid positron emission tomography. Using structural equation modeling, we examined associations between latent constructs representing metabolic/vascular risk, physical activity, and cognitive activity with global amyloid burden and cognitive performance. Furthermore, we investigated the influence of sex in this model.

Results

Overall, higher cognitive activity was associated with better cognitive performance and higher physical activity was associated with lower amyloid burden. Examination of the moderating effect of sex in the model revealed an inverse association of metabolic/vascular risk with cognition in men whereas in women metabolic/vascular risk trended towards increased amyloid burden. Furthermore, a significant inverse association between physical activity and amyloid burden was found only in men. Inheritance of an APOE4 allele was associated with higher amyloid burden only in women.

Discussion

Sex modifies effects of certain lifestyle-related factors on amyloid burden and cognition. Notably, our results suggest that the negative impact of metabolic/vascular risk influences the risk of cognitive decline and Alzheimer's disease through distinct paths in women and men.

Nr: ***2B***

eLORETA BASED RESTING-STATE FUNCTIONAL CONNECTIVITY IN PATIENTS AFTER A RECENT SUICIDE ATTEMPT

Anna Bankwitz[1),2)], Annia Rüesch[1),2)], Atalìa Adank[1),2)], Christoph Hörmann[1),2)], Tania Villar de Araujo[1),2)], Georgios Schoretsanitis[1),3),4)], Birgit Kleim[1),2)], & Sebastian Olbrich[1)]

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Introduction
Concerningly high numbers of suicides and suicide attempts (SA) each year call for further investigation of underlying pathomechanisms. Electroencephalogram (EEG) based frequency measures within the alpha frequency range (AFR), such as the individual alpha peak frequency (IAPF) or alpha functional connectivity (FC), have shown promising potential as biomarkers. It was hypothesized that patients after a recent SA and healthy controls (HC) differ in these EEG based measures.

Methods
We analyzed 15-minute resting-state EEGs in a transdiagnostic sample of 70 patients after a recent SA and 70 age- and gender-matched HC. Exact low resolution electromagnetic tomography was used to map linear and nonlinear FC within the standard AFR (8-12Hz) and the AFR referenced against the IAPF. Network-based statistics were applied to test for group differences.

Results
Results suggest no differences in EEG based FC between patients after a recent SA and HC. However, a subgroup analysis revealed increased nonlinear FC within the standard AFR in depressed suicidal patients (n=53) compared to matched HC and a significant positive correlation between depressive symptoms and global nonlinear FC.

Discussion
These findings affirm the suggested involvement of the AFR in suicidality and depression. The AFR's clinical value and feasibility must be explored further.

Nr: ***3B***

INVESTIGATING THE ROLE OF SEROTONIN IN DECLARATIVE MEMORY USING A HUMAN SEROTONIN LESION MODEL

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Introduction
The exact role of serotonin in declarative memory functions remains unclear. Thus, this project aims to examine the impact of long-term serotonergic hypofunction on visuo-spatial episodic and verbal declarative memory in the human serotonin lesion model of 3,4-methylenedioxymethamphetamine (MDMA, “Ecstasy”) users.

Methods
Memory was assessed by two different tasks, one standardized verbal memory task and a self-developed associative learning task. The retrieval of learned material from both tests took place at two consecutive test days to compare short-term and long-term memory functions. To examine neuronal correlates of MDMA induced memory impairments, resting-state functional magnetic resonance tomography (fMRI) data was collected. A data driven whole-brain multivoxel pattern analysis (MVPA)-based approach was applied to establish regional differences in connectivity between groups. Post-hoc seed-based connectivity analyses with the MVPA derived regions were performed.

Results
We found pronounced impairments in memory retrieval at both time-points in MDMA users, while their learning was largely intact. Connectivity changes of parietal regions were associated with memory scores and self-reported amounts of MDMA consumption.

Discussion
Together, this provides evidence, that a low serotonergic tone, as assumed for MDMA users, is associated with impaired retrieval of episodic and verbal information. These changes are associated with functional alterations of the parietal lobe.

Nr: ***4B***

SLEEP SPINDLES ACROSS YOUTH AFFECTED BY SCHIZOPHRENIA OR ANTI-N-METHYL-D-ASPARTATE-RECEPTOR ENCEPHALITIS

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Introduction
Reductions in sleep spindles, an electrophysiological oscillation during sleep, have been identified in patients with schizophrenia (SZ). This is possibly due to a hypofunction of the N-methyl-D-aspartate receptor (NMDAR). An impaired NMDAR as well as psychotic symptomatology are shared by individuals with anti-NMDAR encephalitis (ANMDARE). This study aims to assess spindles across young patients with Childhood-Onset SZ (COS), Early-Onset SZ, (EOS), or ANMDARE and healthy controls (HC). The relationship between spindle parameters in SZ and the duration of disease is examined. **Methods:** Sleep EEG data of young patients with COS (N=17), EOS (N=11),

Methods
Sleep EEG data of young patients with COS (N=17), EOS (N=11), ANMDARE (N=8), and HC (N=36) were assessed.

Results
Across all patients, central sleep spindle parameters were reduced compared to all HC. Group-specific findings showed a global reduction of spindle density in COS, a central reduction in EOS and no reduction in ANMDARE. The COS group also showed reductions in spindle maximum amplitude and power when compared to other patient groups and HC. A longer duration of SZ was associated with lower central power.

Discussion
Patients with COS demonstrated more pronounced impairments of spindles compared to EOS and ANMDARE. In this sample, there is no strong evidence that changes in NMDAR activity are related to spindle deficits.

Nr: ***5B***

REGULATING BRAIN ACTIVITY IN THE VISUAL WORD FORM AREA WITH REALTIME fMRI NEUROFEEDBACK IN ADULTS WITH POOR AND TYPICAL READING SKILLS

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Introduction
The Visual Word Form area (VWFA) as part of the brain's reading network is crucial for fluent reading. Impaired reading is associated with diminished activation in the VWFA. Neurofeedback (NF) is a neuroimaging technique that allows individuals to learn to regulate brain activity of specific brain areas.

Methods
Here, we investigated whether VWFA activation is susceptible to volitional control and whether adults with typical or poor reading skills are able to upregulate VWFA activation using fMRI-NF. We used a functional localizer to identify individual VWFAs.

Results
Activation of the reading network including the VWFA was detected in typical and poor readers during upregulation blocks over 6 runs of NF-training. Moreover, we found a significant positive correlation between pseudoword reading fluency and activation during word processing.

Discussion
The positive association of reading skills with activation in the VWFA during word processing is in line with previous findings of attenuated activation when reading is impaired. Our results show that adults were able to upregulate VWFA activation during the NF runs, independent of their reading skills. The capacity to volitionally regulate the VWFA activation lays the foundation of our overall aim to develop a brain-based intervention to improve reading in impaired readers.

Nr: ***6B***

LINKING STRUCTURAL AND FUNCTIONAL IMGAING MODALITIES TO CHRAKTERIZE FACE PROCCESING IN AUTISM

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Introduction

Atypical face processing is among core social difficulties of autism. Pinpointing its neural underpinnings has yielded inconsistent results, mostly because analyses rely on average group-differences confined to single modalities. By integrating individual-level deviations across different modalities, we aimed to increase sensitivity in detecting shared mechanisms of face processing in autism.

Methods

We included 102 autistic and 111 neurotypical individuals (6-30 years) from the EU-AIMS Longitudinal European Autism Project. This sample size reflects the intersection of available data across four imaging modalities to be integrated within bilateral fusiform gyrus (FFG) (i.e., neuroanatomy, resting-state fMRI, task-fMRI, EEG). We computed normative models using age, sex and scanning-site as predictors to derive individual-level deviations per modality. Next, Linked Independent Component Analysis simultaneously factorized all subjects' data into 53 independent components (ICs) of spatial variations.

Results

Among five multi-modal ICs, one differed between groups (p_{FDR}=0.004) comprising bilateral FFG volume, right FFG connectivity and bilateral FFG task-activation. Multivariate canonical correlation analysis revealed a significant association between the five multimodal ICs and a set of social-cognitive features (p=0.03).

Discussion

We successfully merged data to characterize a multimodal neurophenotype of autism in a key face processing region. Multimodal aspects related to face processing can explain variance in social functioning in autism.

Nr: ***7B***

CONTROL OF BRAIN ACTIVITY IN THE VISUAL WORD FORM AREA WITH REAL-TIME FMRI NEUROFEEDBACK

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Introduction
Reading is a key skill in our society. One brain structure strongly associated with reading performance is the visual word form area (VWFA). Here, we investigated whether VWFA activity can be voluntarily regulated using real-time fMRI neurofeedback (NF).

Methods
40 adults were either instructed to upregulate (UP group) or to downregulate (DOWN group) their VWFA during NF training. All participants underwent six NF training runs and a no-feedback run before and after NF.

Results
We observed significant activity increases across the whole reading network (including the VWFA, left inferior frontal gyrus, left superior temporal gyrus) when comparing the UP to the DOWN group during NF training. For no-feedback runs, VWFA activity showed an interaction between the conditions run and group ($F(1, 35) = 5.21$, $p = 0.03$). In specific, VWFA activity did not differ between groups before NF ($t(36)=0.11$, $p=0.91$), but was significantly higher in the UP than the DOWN group after NF ($t(36)=2.27$, $p=0.03$).

Discussion
Our results show that using NF to learn to regulate VWFA activity is feasible. Further, they indicate that, once learned, self-regulation can also be performed in the absence of feedback. This provides the foundation for the development of brain-based interventions to improve reading performance.

Nr: ***8B***

CHANGES IN BRAIN CYTOCHROME-C-OXIDASE ASSESSED BY NIRS AS A MITOCHONDRIAL BIOMARKER IN DEPRESSIVE EPISODES

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Introduction

Mitochondrial dysfunction is thought to contribute to the pathophysiology of mood disorders. The project CytNIRS is the first to evaluate mitochondrial biomarkers in the brain and peripheral blood in one patient group. It aims to explain the pathophysiology of mood-regulating pathways. The project CytNIRS is supported by the Swiss National Science Foundation (SNSF) and runs from 2020 – 2024.

Methods

As brain biomarker, we evaluate changes in the concentration of cytochrome-c-oxidase (COX), an enzyme of the electron transport chain at the inner mitochondrial membrane responsible for cell energy production, using near-infrared spectroscopy (NIRS), an optical neuroimaging method. Changes in COX are investigated while the subjects perform a respiration task, triggering neurovascular alternations.
As peripheral biomarkers, we assess well-established models of depression including mitochondrial respiration, inflammatory markers and lipid peroxidation, in peripheral blood cells.

Results

So far, we recruited n = 35 of the planned study population on patients with Major Depressive Disorder compared to n = 49 healthy controls; planned are n = 80 for patients and controls. We will present preliminary results with respect to NIRS recordings and peripheral blood measures.

Discussion

The correlation between brain and peripheral biomarkers evaluated in this project may advance etiological insight into common mechanisms of unipolar depression and may lead to novel diagnostic mitochondrial targets that directly address the biology of depression.

Nr: ***9B***

LOW SUBICULAR VOLUME AS AN INDICATOR OF DEMENTIA-RISK SUSCEPTIBILITY IN OLD AGE.

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Introduction
Hippocampal atrophy is an established Alzheimer's Disease (AD) biomarker. Volume loss in specific subregions as measurable with ultra-high field MRI may reflect earliest pathological alterations.

Methods
Data from PET for estimation of cortical amyloid β (Aβ) and high-resolution 7 Tesla T1 MRI for assessment of hippocampal subfield volumes were analyzed in 61 non-demented elderly individuals who were divided into risk-categories as defined by high levels of cortical Aβ and low performance in standardized episodic memory tasks.

Results
High cortical Aβ and low episodic memory interactively predicted subicular volume ($F(3,57)=5.90$, $p=0.018$). The combination of high cortical Aβ and low episodic memory was associated with significantly lower subicular volumes, when compared to participants with high episodic memory ($p=0.004$).

Discussion
Our results suggest that low subicular volume is linked to established indicators of AD risk, such as increased cortical Aβ and low episodic memory. Our data support subicular volume as a marker of dementia-risk susceptibility in old-aged non-demented persons.

Nr: ***10B***

STRUCTURAL BRAIN DEVELOPMENT AND MENTAL HEALTH OUTCOMES IN TRANSGENDER YOUTH

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Introduction
Transgender children and adolescents can opt to receive gender-affirming hormone therapy (GAHT) during puberty to develop pubertal characteristics aligned with their identified gender, which differs from assigned sex at birth. Hormonal changes from childhood to late adolescence influence brain development, but the effects of sex steroids on structural brain connectivity remain unclear.

Methods
We analyzed diffusion-weighted MRI and questionnaire data of transgender youth undergoing GAHT (n=13, 13.7+/-1.04yo) and puberty-matched cisgender controls (n=12, 11.8+/-0.97yo, Tanner stage 2). We used pyAFQ to perform tractography and extract tissue properties of white matter tracts that have been implicated in sex differences and mental health problems.

Results
Preliminary results show no significant differences of mean diffusivity and fractional anisotropy in the white matter tracts of interest between the gender identity and natal sex groups. We also found that fractional anisotropy of the anterior forceps correlated negatively with mental health scores.

Discussion
New evidence concerning the role of sex steroids in structural brain development will provide critical insights into the effects of GAHT in transgender youth and could have implications for children's health, in adding to our knowledge of the gender-specific and sex-specific development of psychopathology in puberty.

Nr: ***11B***

ALTERED AUDIOVISUAL CONGRUENCY EFFECT IN LATE BUT NOT EARLY ERP TIME WINDOWS FOR PUPILS WITH TYPICAL AND POOR READING SKILLS

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Introduction

Previous studies have shown deficient letter-speech sound integration and audiovisual (AV) mismatch processing in dyslexics. It remains unclear, however, how and when whole-word AV processing occurs in children depending on reading skills. With an AV EEG paradigm, we therefore examined how reading skills modulate processing of congruent (con) and incongruent (inc) AV information.

Methods

95 native German-speaking 2nd-3rd graders participated in EEG recordings. Children performed an explicit AV matching task involving con or inc word (W), pseudoword (PW), and object (O) stimuli. Mean event-related potential (ERP) amplitudes were extracted in early N1and late P2 and LP windows. We ran linear mixed models with factor condition and covariates reading skill, attention, and IQ to examine congruency effects.

Results

Our results indicate that children with poor reading skills (PR) do not have a general deficit in matching AV input (intact for objects). However, only children with typical reading skills (TR) show a congruency effect difference between W and PW. This suggests that PR apply the same strategy (phonological decoding) to read W and PW, while TR rely on sight-reading for words.

Discussion

These results underline difficulties in PR to proceed to sight word reading even when preceding auditory information should support reading.

Nr: ***12B***

PREDICTING CBT OUTCOMES IN ANXIETY DISORDERS WITH A PROBABILISTIC REVERSAL LEARNING TASK: A BEHAVIOURAL AND ERP STUDY

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Introduction

The efficacy of common treatments for psychiatric disorders varies widely across individuals and the mechanisms underlying successful recovery are poorly understood. We investigated behavioural and neural indices of reward learning to predict psychotherapy outcomes in participants with anxiety disorders. We aimed to explore mechanisms of cognitive flexibility, negativity biases, and reward responsivity, which are suggested to be impaired in anxiety disorders, and to play a role in recovery.

Methods

In the presented analysis, 38 patients underwent 16-20 weeks of cognitive behavioural therapy (CBT), and 17 were allocated to a waitlist for the same duration. The participants completed a classic probabilistic reversal learning task during electroencephalography (EEG) recording before and after this period and their anxiety symptom severity was assessed at pre-treatment, mid-treatment, and post-treatment timepoints. Two event-related potentials (ERPs), the feedback-related negativity (FRN) and late-positive potential (LPP), alongside basic behavioural indices, were analysed for their basic characteristics and investigated as potential predictors of treatment response.

Results

Preliminary results show that these ERPs did not significantly relate to symptom improvement pre- to post-treatment, nor did choice accuracy or number of stimulus-contingency reversals.

Discussion

Implications, limitations, and future directions of these findings are also presented, including future work using computational models to explore task behaviour

Nr: ***13B***

MULTISENSORY PROCESSING AND LEARNING IN THE BRAIN: A PILOT STUDY OF CHILDREN AND ADULTS

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Introduction

Living in a multisensory world requires successful integration of information from different sensory modalities – especially in language acquisition. Impairments in multisensory integration could be related to developmental disorders including developmental language delay (DLD). The relation between multisensory learning and DLD is still unclear and examined in an ongoing project.

Methods

We present first behavioural pilot data of 33 healthy children (mean age = 9.62yrs, [8–10]) and fMRI data of 10 adults (mean age = 27.1yrs, [22–34]). Participants learned more and less frequently occurring associations between pairs of symbols and sounds.

Results

Preliminary results of the children's data show faster responses in the second and last third compared to the first third of the task ($p<0.001$), indicating some learning. Response accuracies were higher in frequent compared to rare pairs (60% vs. 46%, $p<0.001$), but remained low. The fMRI analyses in adults show expected activations in visual, auditory, and frontal regions during audio-visual processing, and additional activation in insula or subcortical regions when processing positive or negative feedback, respectively.

Discussion

These first data indicate that the task is well suited to study multisensory processing in the brain, although further adjustments are still needed for the use in young children.

Nr: ***14B***

COMPARING NEURAL CORRELATES OF CONSCIOUSNESS: FROM PSYCHEDELICS TO HYPNOSIS AND MEDITATION

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Introduction
Altered states of consciousness (ASCs) have shown clinical efficacy in the treatment of a wide range of mental health disorders. While there is some overlap in the phenomenology, to date no study has directly compared their neural correlates.

Methods
To address this knowledge gap we directly compared psilocybin, LSD, hypnosis, and meditation, using rs-fcMRI. We compared the within-subject effects of Psilocybin, LSD, Hypnosis, and Meditation on rs-fcMRI in 107 participants. All participants underwent a scan in which an ASC was induced, and a control scan.

Results
Behaviourally, all four methods of intervention induced an ASC. Neurally, the ROI-to-ROI analysis revealed that pharmacological and non-pharmacological interventions result in distinct alterations in ROI-to-ROI rs-fcMRI.

Discussion
Our results provide key insights into understanding the neural mechanisms of pharmacologically and non-pharmacologically induced ASC. The ROI-to-ROI results indicate that the psychedelic state induced by both psilocybin and LSD may involve an increase in the processing of sensory information, which is not counterbalanced by associative network integrity. In contrast, the ROI-to-ROI analysis indicated that the non-pharmacological methods (Hypnosis, Meditation) were more dissimilar.

Nr: ***15B***

EEG THETA ACTIVITY IN ADHD: A DIAGNOSTIC MARKER OR A MARKER OF SLEEPINESS?

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Introduction

Children with ADHD (attention deficit hyperactivity disorder) often present with elevated theta oscillations (4-8 Hz) in the electroencephalogram (EEG). It has therefore been proposed to use the theta-beta ratio as a diagnostic marker. However, elevated theta also characterizes sleepiness, and ADHD children often suffer from sleep deficits. At the same time, theta has been found to increase during focused attention. It is currently unknown if theta in ADHD is related to sleepiness or cognitive effort.

Methods

We conducted a high-density EEG study in 18 young healthy adults performing a short-term memory task under baseline and sleep deprivation conditions to determine whether theta due to sleepiness could be distinguished from theta due to cognition.

Results

Using source localization, we found that sleepiness-related theta was far more widespread (38% of gray matter voxels), peaking over right superior frontal areas (t=5.94). Instead, theta related to cognition was more localized (21%), peaking over left medial frontal areas, in particular the anterior cingulate cortex (t=4.76).

Discussion

Having established that sleep-deprivation theta can be topographically distinguished from cognition-theta, we will apply this analysis to EEG data collected in children with ADHD to determine whether their distribution of theta more resembles sleepiness, or cognition.

Nr: ***16B***

ANATOMICAL INTEGRITY OF WHITE MATTER LANGUAGE PATHWAYS AND SEMANTIC COGNITION DEFICIENCIES IN EARLY PSYCHOSIS

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Introduction

Semantic cognition relies on two principal interacting neural systems: one of *representation* and one of *control*. Semantic processing anomalies, clinically occurring next to phonemic paraphasia's within formal thought disorders, are a core feature of psychosis. According to current candidates for the white matter connectivity supporting semantic cognition, we hypothesize a correlation of the direct ventral pathway with semantic control, on the one hand, and of the indirect ventral pathway with semantic representation, on the other hand, in early psychosis (EP) patients.

Methods

Diffusion data was acquired from EP patients and healthy controls. A tract based spatial statistical analysis was performed in order to find correlations with specific semantic or phonetic measures.

Results

Based on our previous finding of a negative association between semantic impairments and axial diffusivity of the left IFOF (r = -0.564), we expect completing the measurement of a substantial part of the targeted sample size of 25 patients and 25 healthy controls until autumn 2022 and will be able to present preliminary results of the data analysis at the Burghölzli Psychiatry Meeting 2022.

Discussion

This work will provide potential new insights into the detailed structural anatomy of semantic processing disorders in schizophrenia.

Nr: ***17B***

COMPARISON OF ULTRA-HIGH-FIELD (7T) VS. LOW-FIELD (3T) MAGNETIC RESONANCE SPECTROSCOPY IN A SMALL SUBCORTICAL REGION.

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Introduction

The nucleus accumbens (NAcc) is crucial within the reward system. Due to its small volume, it is hard to capture its metabolic activity. Hence, a longer scanning time is required in a 3T scanner, which amplifies the risk of motion artifacts and unreliable measurements. Moreover, glutamate and glutamine (Glx) signals are harder to separate at lower field strength. A 7T scanner is expected to achieve a higher spectral resolution and signal-to-noise-ratio (SNR). Thus, we investigated the potential of 7T scanner to assess Glx in small subcortical regions like the NAcc.

Methods

We compared two localization methods; non-water suppressed MC-PRESS performed on a 3T scanner vs. semi-LASER with FASTESTMAP shim tool on a 7T scanner (N=3). We evaluated SNR, linewidth, and Cramér-Rao Lower Bounds (CRLB) to assess data quality.

Results

We observed a significantly improved SNR at 7T vs. 3T (Mdn_{3T}=9.2,Mdn_{7T}=14.0). Despite the significantly increased linewidth (Mdn_{3T}=8.8,Mdn_{7T}=17.5), an improvement in %CRLB of glutamate (Mdn_{3T}=13.0,Mdn_{7T}=4.0), but not for glutamine and Glx was observed. While SNR and linewidth were stable at the 3T, they fluctuated significantly at 7T.

Discussion

Using 7T for small subcortical region appears beneficial, but due to small sample size, the stability of those measures remains uncertain.

Nr: ***18B***

NEUROFUNCTIONAL AND NEUROCHEMICAL MECHANISMS INVOLVED IN THE PATHOPHYSIOLOGY OF DEPRESSION AND ITS PSYCHOTHERAPEUTIC TREATMENT: AN UPDATE ON RESULTS OF THE ZURICH DEPRESSION STUDY

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Introduction
To date, critical gaps in the knowledge of the neurobiology of depression remain and the neurobiological mechanisms involved in its psychotherapeutic treatment are poorly understood. The aim of the Zurich Depression Study is to determine specific neurofunctional and neurochemical brain alterations in depression and identify treatment effects of psychodynamic psychotherapy.

Methods
56 depressed participants and 52 healthy controls participated in a baseline fMRI and MRS measurement; a subgroup of 32 depressed patients received once-a-week psychodynamic psychotherapy and was assessed again after six months of treatment.

Results
In depression, the processing of emotional memories is associated with hyper-connectivity of a specific brain network mediating introspective processes. Individuals with depression show reduced neural response to the anticipation of control in the pregenual anterior cingulate cortex. In the same brain region, depression is associated with alterations in glutamatergic neurotransmission, and psychotherapy affects these alterations.

Discussion
The Zurich Depression study has demonstrated alterations in different levels of brain function in depression that underpin emotional and cognitive processes that are typically targeted in psychotherapeutic treatment. Results of our ongoing analyses demonstrate effects of psychotherapy on brain function. Our study contributes to a growing body of research identifying neural processes mediating response to psychotherapy in depression.

Nr: ***19B***

TARGETING DEPRESSION-ASSOCIATED POSITIVE AND NEGATIVE AFFECTIVE BIASES USING ADAPTIVE AMYGDALA NEUROFEEDBACK

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Introduction

Major depressive disorder has the highest prevalence worldwide and there is an urgent need of a symptom-specific treatment. Recent neuroimaging advances propose that emotion dysregulation is triggered by impaired cortico-limbic functioning, specifically amygdala in depression. We translated these insights into experimental real-time fMRI-based neurofeedback therapy with a ‘naturalistic adaptive feedback’ approach that translates patients’ ongoing amygdala activity into emotional expressions of dynamically adaptive happy and fearful face stimuli.

Methods

The study included twenty-two patients diagnosed with unipolar depression and were randomly assigned to two experimental groups, happy-up and fear-down. Patients from both groups learned to upregulate and downregulate amygdala activity by turning neutral face stimuli happy in the happy-up condition, and turning fearful face stimuli neutral in the fear-down condition, respectively. Neurofeedback training success was assessed as neural (amygdala activity) and behavioural (psychometric questionnaires) outcome measures at baseline, post-intervention, and follow-up after eight weeks.

Results

Preliminary findings suggest there was a significant decrease in the clinical scores on depression severity scales post intervention with relative reduction at follow-up as compared to the pre-training scores in depression patients.

Discussion

Cinical improvements in depression patients implied the potential of neurofeedback as a noninvasive therapeutic modality to target neural deficits in depression.

Nr: ***20B***

WHITE MATTER ALTERATIONS IN CHRONIC MDMA USE: EVIDENCE FROM DIFFUSION TENSOR IMAGING AND NEUROFILAMENT LIGHT CHAIN BLOOD LEVELS

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Introduction
3,4-Methylenedioxymethamphetamine (MDMA) is a serotonin- and noradrenaline-releasing substance, currently among the most widely used illicit substances worldwide. In animals, repeated exposure to MDMA has been associated with dendritic but also axonal degeneration in the brain. However, translation of the axonal findings, specifically, to humans has been repeatedly questioned and the few existing studies investigating white-matter alterations in human MDMA users have yielded conflicting findings.

Methods
The study included twenty-two patients diagnosed with unipolar depression and were randomly assigned to two experimental groups, happy-up and fear-down. Patients from both groups learned to upregulate and downregulate amygdala activity by turning neutral face stimuli happy in the happy-up condition, and turning fearful face stimuli neutral in the fear-down condition, respectively. Neurofeedback training success was assessed as neural (amygdala activity) and behavioural (psychometric questionnaires) outcome measures at baseline, post-intervention, and follow-up after eight weeks.

Results
MDMA users showed increased fractional anisotropy in several white-matter tracts, most prominently in the corpus callosum as well as corticospinal tracts, with these findings partly related to MDMA use intensity. However, the NfL levels of MDMA users were not significantly different from those of controls.

Discussion
We conclude that MDMA use is not associated with significant white-matter lesions due to the absence of reduced fractional anisotropy and increased NfL levels commonly observed in conditions associated with white-matter lesions, including stimulant and ketamine use disorders. Hence, the MDMA-induced axonal degradation demonstrated in animal models was not observed in this human study of chronic MDMA users.

Poster Abstracts

Topic C: Basic Clinical Research

Nr: ***1C***

LONGITUDINAL ASSESSMENT OF NEUROAXONAL PATHOLOGY WITH NEUROFILAMENT LIGHT CHAIN MEASURE IN BLOOD: A NEW MONITORING MARKER FOR CHRONIC COCAINE USERS?

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Introduction

The recent introduction of new generation, high-sensitive blood assay methods, allow us the investigation of novel markers of structural brain integrity with low-invasive procedures. In particular, neurofilament light chain (NfL) levels in blood are strongly related to active neuro-axonal pathology in a wide range of clinical and physiological conditions and their measure was proposed as diagnostic and monitoring tool indifferent neuropsychiatric disorders. To date, longitudinal studies on NfL levels in the addiction field are still lacking.

Methods

We therefore investigated NfL levels in blood of 35 chronic cocaine users (CU) and 35 stimulant-naïve healthy controls (HC) at baseline and at a 4-month follow-up. Cocaine use intensity was determined by hair testing at both time points.

Results

In a generalized linear model corrected for sex, age, and BMI, NfL plasma levels were elevated in CU compared to HC ($p<0.05$). A moderate positive correlation between cocaine hair concentration and NfL levels was found within CU ($r=0.36$, $p=0.03$). Change (increase/decrease) of cocaine use over the 4-months interval predicted NfL levels at follow-up ($p=0.002$).

Discussion

Our findings confirmed NfL to be a sensitive marker of cocaine-related neuro-axonal pathology and support the utility of blood NfL analysis in the addiction research.

Nr: ***2C***

EXPOSURE TO MATERNAL DEPRESSIVE SYMPTOMS DURING CHILDHOOD AND YOUNG ADULT HEALTH RISKS: PRELIMINARY ANALYSES OF A 17-YEAR STUDY

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Introduction

Cardiovascular health risk, including systemic inflammation (e.g. CRP), high BMI, somatic symptoms, and unhealthy behaviors, are common in young adults. Yet, its risk factors need to be better understood. One neglected factor is exposure to maternal depression during childhood. This study aims to examine maternal depressive symptoms in childhood as a risk factor for young adult cardiovascular health risks.

Methods

Mothers and children (N=416 families) from a community-cohort study from the US were first assessed at child age 2 and followed for 17 years. Maternal depressive symptoms in childhood were mother-reported at child ages 2, 4, 5, 7, and 10. Two trajectory groups of maternal depressive symptoms were identified: stable low (88%) and stable high (12%). At age 19, 292 young adult offspring self-reported somatic symptoms and unhealthy behaviors. Height and weight were measured in the laboratory. CRP was assayed from blood samples.

Results

Preliminary analyses suggest that young adults whose mothers experienced stable high depressive symptoms reported more unhealthy behaviors, higher BMI, and more somatic symptoms compared to the rest of the sample. These associations attenuated when including sociodemographic characteristics.

Discussion

Maternal depressive symptoms and young adult health risk co-occur in broader contexts of sociodemographic risk.

Nr: ***3C***

SECONDARY NEGATIVE SYMPTOMS ACROSS SCHIZOPHRENIA AND BIPOLAR DISORDER: CHARACTERISTICS AND ASSOCIATIONS WITH WORKING MEMORY

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Introduction
Negative symptoms (NS) are a core feature of schizophrenia (SZ) and can also be measured in Bipolar-Disorder-I (BD-I) patients. Secondary NS due to other psychopathology or medication are frequently reported in clinical routine. Here, we aimed to characterize NS, identify potential sources of secondary NS, and evaluate their associations with working memory (WM) in outpatients of the SZ-BD spectrum.

Methods
NS were measured in an open access dataset (consortium for neuropsychiatric phenomics: 50 SZ, 49 BD-I) using SANS. Positive symptoms, depressive symptoms and medication were assessed. A working memory sum score of variant WM tests was calculated. Multiple regression analyses were applied to assess associations between NS domains, potential sources for secondary NS and WM.

Results
Transdiagnostically, disorganization was associated with avolition-apathy and anhedonia-asociality, depressive symptoms predicted anhedonia-asociality. Antipsychotic dose was associated with blunted affect. Group differences only predicted alogia. Avolition-apathy predicted impaired WM transdiagnostically. In BD-I patients only, higher avolition-apathy scores were associated with worse WM, while better WM was predicted by higher anhedonia-asociality scores.

Discussion
Our findings indicate the occurrence of secondary negative symptoms in patients with SZ and BD-I. WM is negatively impacted by avolition-apathy transdiagnostically while anhedonia-asociality is associated with better WM in BD-I patients.

Nr: ***4C***

SCHIZOTYPY CLUSTERS: THE IMPACT OF USING DIFFERENT QUESTIONNAIRES

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Introduction

Schizotypy questionnaires differ greatly in their theoretical background and factor structure. Could this lead to the identification of different schizotypy clusters based on different questionnaires in the same population?

To investigate this, we conducted two separate cluster analyses based on two questionnaires in the same population: The Multidimensional Schizotypy Scale (MSS) and the Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE). We hypothesized the clusters to correspond moderately between questionnaires.

Methods

653 healthy individuals completed the MSS and O-LIFE online. As preregistered on AsPredicted.com, we conducted two model-based cluster analyses based on the z-standardized sum scores of the subscales of the MSS and of the O-LIFE. We compared the cluster solutions using the Adjusted Rand Index, which indicates how often the same individual is assigned to the corresponding cluster based on the MSS and O-LIFE, given the chance of random agreement.

Results

The model-based clustering analyses resulted in five clusters for the MSS and four clusters for the O-LIFE. The Adjusted Rand Index equals 0.10, which indicates a low agreement between the MSS and O-LIFE clusters.

Discussion

The results indicate that the clusters differ noticeably depending on which questionnaire is used, which means they cannot be used interchangeably.

Nr: ***5C***

ASSESSING THE FEASIBILITY OF REDUCING SLOW-WAVE ACTIVITY DURING SLEEP WITH A WEARABLE DEVICE IN A HOME SETTING

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Introduction
Sleep deprivation alleviates symptoms of depression. The rapid antidepressant effect, however, typically disappears after recovery sleep. This pilot aims at assessing the feasibility of reducing slow-wave activity (SWA) during non-rapid eye movement (NREM) sleep by auditory down-phase stimulation using a wearable device (MHSL-Sleepband v3) at home.

Methods
We recorded frontal EEG in five healthy participants (24.3±2.3 years, three females) for six consecutive nights with (verum) and without (sham) stimulation. The device delivered tones upon detecting the slow wave down-phase and NREM sleep, using alternating pairs of 10-s ON-OFF windows. Sleep scoring followed AASM guidelines. Considering ON and OFF windows separately, linear mixed effects models were computed.

Results
Fifty-four nights were analyzed. Stage percentages did not change due to conditions or nights. There was no evidence for a difference between conditions in all-night SWA ($p=0.11$). SWA in OFF windows was lower in verum versus sham nights (184 μV^2, 95%-CI 97 to 271 μV^2, $p<0.001$) and unchanged in ON windows ($p=0.82$).

Discussion
Sleep modulation with the MHSL-Sleepband v3 in a home setting was feasible. It reduced SWA in OFF windows in NREM sleep without disrupting sleep architecture. Clinical trials will evaluate the stimulation efficacy and effects in depressed patients.

Nr: ***6C***

RECIDIVISM OF SWISS THERAPEUTIC MEASURES PATIENTS

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Introduction

Offenders, whose crime and risk of re-offending is linked to a severe mental illness, may be sentenced to undergo forensic-psychiatric treatment according to article 59 of the Swiss criminal code. The treatment aims to reduce the risk for society posed by the offenders though little is known about its efficacy. At the forensic psychiatric hospital of the psychiatric university hospital Zurich, we draw criminal records of former patients as part of our quality control process on a yearly basis.

Methods

We analyzed the recidivism rates and type of re-offence of 290 former forensic-psychiatric patients (n=140 patients sentenced to a therapeutic measure and n=150 admitted for crisis intervention). Patients were released between 2006 and 2017 and had a Time-at-Risk (TAR) of at least three years.

Results

Therapeutic measure patients were re-offending less often than crisis intervention patients after a fix-TAR of three years (16.4% vs. 33.3%) and at a slower pace (longer time interval between release and re-offence). The re-offence crimes were also less severe.

Discussion

Recidivism rates are comparable to forensic-psychiatric patients in Germany and lower than recidivism rates of the general prison population in Switzerland (44.7%). Forensic-psychiatric treatment therefore reduces recidivism in a high risk population.

Nr: ***7C***

RATIONAL, EMOTIONAL, OR BOTH? SUBCOMPONENTS OF PSYCHOPATHY PREDICT OPPOSING MORAL DECISIONS

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Introduction

Recent research has documented a small but significant correlation between psychopathic capacities and utilitarian moral judgment, although the findings are generally inconsistent and unclear. We propose that one way to make sense of mixed findings is to consider variation in perspective-taking capacities of psychopathic individuals.

Methods

We had criminal offenders ($n = 60$), who varied in their psychopathy levels according to the Psychopathy Checklist-Revised (PCL-R), respond to common sacrificial moral dilemmas (e.g., trolley dilemmas) under different conditions. In a baseline condition, participants simply responded to the sacrificial moral dilemmas as is typically done in previous research. In an “emotion-salient” condition, participants had to reason about the emotions of another person after solving moral dilemmas (deliberative processing). In the “emotion-ambiguous” condition, participants saw images of people in distress, after solving moral dilemmas, but did not have to explicitly reason about such emotions (spontaneous processing).

Results

The four PCL-R facets predicted distinct interference effects depending on spontaneous versus deliberative processing of hypothetical victim's emotions.

Discussion

The findings suggest that the use of a multi-faceted approach to account for cognitive and moral correlates of psychopathy may help address previously mixed results. Implications and future directions for theory and research are discussed.

Nr: ***8C***

IDENTIFYING DISTINCT SUBGROUPS OF SUICIDAL IDEATIONS: A PRE-REGISTERED ECOLOGICAL MOMENTARY ASSESSMENT STUDY IN PSYCHIATRIC INPATIENTS

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Introduction
Suicidal ideations (SI) are amongst the strongest predictors for suicide attempts, yet reliable prediction models are lacking. One challenge is that SI vary over time. Using ecological momentary assessments (EMA), prior research identified five distinct subgroups that differed in mean SI severity and variability.

Methods
We first aimed to replicate these results using latent profile analysis (LPA) on EMA (5 assessments/day over 28 days: 34% response rate of all beeps completed) of 50 psychiatric patients (32 females, 64%, age M=35.26, SD=12.54). We then used longitudinal clustering (LC), an advanced statistical approach that considers the longitudinal, dynamic nature of EMA, to replicate the subgroups.

Results
Using LPA, we replicated four of the five groups with somewhat different characterizations. Using LC, we identified subgroups representing the nature of the observed SI better and showed more anticipated clinical characteristics. Among those, hopelessness and prior SI were most convincing, i.e., the subgroup with the least severe SI were characterized by least hopelessness and the most severe SI subgroup by more hopelessness.

Discussion
The fluctuating nature of SI might be particularly clinically meaningful as it can be used for subtyping patients, an important step towards a better understanding of SI and basis for improving prediction and prevention.

Nr: ***9C***

THE ROLE OF SELF-COMPASSION AND RUMINATION IN THE TREATMENT OF LONG-TERM AND COMPLEX DEPRESSION IN A DAY CLINIC SETTING

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Introduction

How patients respond to their depressive symptoms plays a critical role in the persistence of depression and their quality of life, as patients tend to ruminate about their symptoms. There is evidence that a self-compassionate attitude may disrupt the ruminative thinking process. Therefore, the present study tested the hypotheses that rumination mediates the effects of self-compassion on the change in depressive symptoms and in quality of life.

Methods

The sample consisted of comorbid and long-term depressed patients undergoing treatment at a Day Clinic at the Psychiatric University Hospital Zurich. They completed measures of self-compassion, rumination, depressive symptoms, and quality of life at the start and end of treatment. Two mediation models were analyzed using a bias-corrected bootstrapping approach.

Results

Self-compassion predicted rumination in both models. Moreover, rumination completely mediated the effect of self-compassion on the improvement in quality of life. However, neither self-compassion nor rumination were able to predict the reduction of depressive symptoms.

Discussion

The analysis provides an important insight into the interplay of self-compassion, rumination, and treatment outcome for depression in routine care. However, as they were not able to predict the change in depressive symptoms, further research taking other emotion regulation strategies into account is needed.

Nr: ***10C***

BRIDGING INPATIENT AND OUTPATIENT CARE: EVALUATION AND RESULTS OF A DAY CLINIC TREATMENT PROGRAM FOR SEVERELY AND LONG-TERM DEPRESSED PATIENTS

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Introduction

Depression is among the most common mental disorders and one of the leading causes for disability. It is characterized by a high rate of recurrence and about a third of patients develop a persistent course. Moreover, only half of patients achieve recovery and a substantial number of them is treated over life time. Thus, day clinic care is an important and cost-effective treatment option. It offers intensive and multimodal treatment, but also enhances transfer effects as patients return home daily.

Methods

A naturalistic, longitudinal study on process and outcome of depression was conducted at the Day Clinic for Depression and Anxiety at the Psychiatric University Hospital. About 70% of the patients were included. They underwent treatment in a multimodal program and were assessed over the course of treatment. A one-year follow-up is still running.

Results

Sociodemographic and clinical characteristics of the patients are provided. Additionally, their treatment progress and how patients experienced their stay at the day clinic are presented.

Discussion

The data offers an important insight into the day clinic treatment of complex and long-term depression under routine care conditions. Advantages (e.g., high external validity) and limitations (e.g., high number of male patients) are discussed.

Nr: ***11C***

ASSOCIATIONS BETWEEN HAIR CONCENTRATIONS OF PSYCHOACTIVE SUBSTANCES AND STEROID HORMONES IN A LARGE REPRESENTATIVE SAMPLE OF YOUNG ADULTS IN SWITZERLAND

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Introduction

Cortisol and cortisone are frequently used as physiological stress markers, with growing interest in the role of testosterone. These steroid hormones are increasingly measured via hair sampling to provide a window into cumulative exposure. Studies investigating steroid hormones in hair largely ignore the potential effects of psychoactive substances, although animal models suggest a knock-on effect on the hypothalamic–pituitary–adrenal axis stress response.

Methods

This project aims to assess the associations between steroid hormones and cannabinoids, stimulants, 3,4-methylenedioxymethamphetamine (MDMA), and opioids in hair. Data was drawn from a representative sample of 20-year olds (n=1002). Multiple regression models were used to assess associations between steroid hormones, potential covariates, and psychoactive substances in hair.

Results

Preliminary results show an association between both low (β=.29, 95% CI=0.02-0.34, p=0.026) and high concentrations of cannabinoids (β=.40, 95% CI=0.10-0.40, p=0.001) with higher levels of hair cortisol. High cocaine concentrations were associated with higher levels of cortisol (β=.0.31, 95% CI=0.01–0.60, p=0.040). Testosterone levels were not associated with substance concentrations in hair.

Discussion

These results suggest that substance use should be considered when interpreting hair levels of corticosteroids in large samples.

Nr: ***12C***

PREVIEW OF THE RETPSY STUDY - RETINAL CYTOARCHITECTURE AS A BIOMARKER TO IMPROVE IDENTIFICATION OF PATIENTS AT PRE-CLINICAL AND EARLY STAGES OF PSYCHOTIC DISORDERS

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Introduction

Schizophrenia (SCZ) is a chronic and debilitating psychiatric disorder impairing complex brain functions. Detection at early and even pre-clinical stages has become central in the treatment of emerging psychotic disorders. There is evidence for structural abnormalities of the brain in high-risk individuals but the implementation of whole brain imaging techniques for risk stratification is unlikely in the near future due to costs and patient burden. In contrast, the retina can be imaged directly and less expensively than an MRT by using optical coherence tomography (OCT). A recent meta-analysis found fair discriminatory potential of OCT and emphasized the potential of longitudinal assessment for risk stratification in pre-clinical individuals.

Methods

Single center, observational cross-sectional study, measuring different retinal parameters non-invasively with OCT in 159 subjects with UHR, early stage psychosis and healthy controls.

Results

With our recently collected pilot data (N=5 subjects) we could demonstrate that the measurement of retinal layers with a resolution of only few micrometers is possible.

Discussion

With an ophthalmological biomarker that is relatively easy and quick to measure we could predict transition from high-risk to full-blown psychosis in individuals at high-risk. Currently, no such biomarker is available, making this a particularly relevant and exciting perspective.

Nr: ***13C***

ELEVATED ENDOCANNABINOIDS IN HUMAN COCAINE ADDICTION: ASSOCIATIONS OF 2-ARACHIDONOYLGLYCEROL WITH COCAINE CRAVING AND METABOTROPIC GLUTAMATE RECEPTOR 5 DENSITY IN CHRONIC COCAINE USERS

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Introduction
The endocannabinoid system (ECS) has been recently linked to substance addiction due to its interaction with the stress-response and dopaminergic reward system, the latter additionally mediated by metabotropic glutamate receptor 5 (mGluR5). However, human translational studies are missing so far. Here, we investigated plasma endocannabinoids and their link with mGluR5-density in chronic cocaine users.

Methods
We compared baseline endocannabinoid plasma levels (e.g., anandamide [AEA], 2-arachidonoylglycerol [2-AG]) between chronic cocaine user (recreational non-dependent users [*RCU*] and dependent users [*DCU*]) and healthy controls. Associations between endocannabinoids and mGluR5 density measured with ^{11}C-ABP688 PET was assessed in a subsample.

Results
We found higher plasma concentrations of 2-AG in *DCU* compared to controls and *RCU*. Within cocaine users, 2-AG was negatively associated with cocaine-craving scores and positively correlated with mGluR5-density (subsample).

Discussion
Our results corroborate preclinical findings suggesting an alteration of the ECS in human cocaine addiction. Precisely, 2-AG seems to play a crucial role in cocaine dependence and craving. Present findings support results of recent animal models suggesting an interaction between 2-AG and mGluR5 related to drug-seeking behaviour. Therefore, the ECS might be a promising pharmaco-therapeutic target for novel treatments of cocaine use disorder to prevent drug relapse and improve cocaine abstinence

Nr: ***14C***

AUDITORY STIMULATION DURING SLEEP BOOSTS SLOW-WAVE-SPINDLES COUPLING IN CHILDREN WITH ATTENTION-DEFICIT HYPERACTIVITY DISORDER (ADHD)

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Introduction

Cross-frequency coupling between the slow waves (SW, 0.5-2 Hz) and spindles (9-12 Hz) is thought to facilitate sleep-dependent memory consolidation. In this study, we tested (1) whether the SW-spindles coupling is impaired in children with ADHD and (2) if phase-targeted auditory stimulation (PTAS) might compensate for this deficit.

Methods

Sleep hd-EEG data of 18 children (9 children with ADHD and 9 control children, 11±1.5 years) was collected in two conditions: (1) non-stimulation (SHAM) and (2) up-PTAS (STIM) of the frontal slow waves detected during NREM sleep.

Results

Contrasting coupling strength of the two experimental groups during SHAM nights revealed decreased coupling in fronto-temporal regions in children with ADHD ($p(clust)$=0.01). PTAS resulted in a boost of coupling in fronto-central regions for both groups of children ($p(clust)$<0.02).

Discussion

Here we provide initial evidence, that children diagnosed with ADHD have a deficit of coupling between SW and spindles. Our results also suggest that PTAS is an efficient tool to boost SW-spindle coupling in children and could be used to compensate for the deficit observed in children with ADHD. In the next step, it will be important to test whether PTAS-evoked coupling changes can improve sleep-dependent memory consolidation in children with ADHD.

Nr: ***15C***

ALPHA WAVES AS A POTENTIAL EEG-BIOMARKER FOR IDENTIFYING DISSOCIATIVE SEIZURES.

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Introduction

Dissociative seizures (DS) are a conversion disorder subtype at the diagnostic interface of neurology and psychiatry. Neurologic diagnostics includes a process of exclusion by capturing a typical event on video electroencephalography (EEG) showing the absence of epileptiform EEG activity and a typical semiology of DS. Since methods of exclusion entail many drawbacks, we aim to find EEG correlates allowing for a positive diagnosis of DS.

Methods

Quantification of alpha-power in video EEG of DS patients and evaluation of whether anomalous alpha activity continues during periods of active movements and/or open eyes.

Results

For a subset of patients, we observe an anomalous continuation of alpha EEG-activity during the active movement period of DS. Periods of alpha-activity are of variable lengths and their onset and cessation does not coincide with otherwise typical behavioral markers such as a relaxed state and closed eyes.

Discussion

Since alpha-activity might represent a dissociation between otherwise functionally connected brain areas, this EEG-correlate might be a positive diagnostic biomarker for a subset of DS-patients. It remains to be evaluated whether the presence of this EEG-marker corresponds with currently established subclasses of DS.

Nr: ***16C***

TOBACCO USE, CANNABIS USE, SELF-CONTROL, AND VIOLENCE: DISENTANGLING RELATIONS FROM EARLY ADOLESCENCE TO EARLY ADULTHOOD

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Introduction
Several studies have detected associations between substance use and violence. The exact nature of these relationships, however, remain unclear and the role of potential mediators are not well understood. We examine a) the interrelations between tobacco use, cannabis use, self-control, and violence from early adolescence to early adulthood and b) the role of self-control as a potential mediator.

Methods
Longitudinal associations were examined in a population-based sample of *N*=1482 youths (z-proso study). Used measures were self-reported self-control (ages 11, 13, 15, 17, 20), substance use (tobacco, cannabis) and violence (ages 13, 15, 17, 20).

Results
Results suggested that tobacco use is a predictor for future cannabis use. Cannabis use is also reciprocally related to tobacco use but only in late adolescence. Also, tobacco use is partially associated with increased violence over time, but none of the associations were mediated by self-control, whereas cannabis use seems to be independent of violence over time.
Moreover, high self-control in early and mid-adolescence is associated with less future substance use and violence.

Discussion
In our community sample, tobacco use is associated with more cannabis use and more violence over time. The findings also highlight the importance of high self-control especially in early and mid-adolescence.

Nr: ***17C***

PSYCHIATRIC NURSES AND EXPERIENCES OF VIOLENCE IN HOSPITALS - A QUALITATIVE SYSTEMATIZED LITERATURE REVIEW WITH METASYNTHESIS

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Introduction
Psychiatric nurses are subjected to violence and aggression from patients. Violence can have consequences for the victims that affect both individuals and organisations. The literature about violence in psychiatric organisations does not give specific statements about the interaction between psychiatric organisations and nurses or recommendations with regards to nursing staff support, following an incident of violence. We aimed to show what psychiatric organisations can do to support their nurses.

Methods
This is a qualitative review (Meta-Aggregation) based on the Joanna Briggs Institute methodology for systematic reviews. We used the databases CINAHL, PubMed and PSYNDEX for literature search.

Results
We identified five components how nurses experience violence in psychiatric work: perceiving violence as normality; cooperation with other professions; supervisors' and managers' roles in incidents; overall team support; individual experiences and knowledge of nursing staff. Based on the literature, we provide recommendations of policy and action, to improve the way how psychiatric organisations deal with violent incidents.

Discussion
We discuss to facilitate implementing the recommendations for action in psychiatric organisations. The focus is on the organisational culture.

Nr: ***18C***

RISK FACTORS AND MOTIVES OF ABSCONDING IN A FORENSIC FACILITY - A CASE CONTROL STUDY

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Introduction

Absconding from a psychiatric facility, particularly in the forensic context, can have significant negative impacts on public safety, public distrust of the psychiatric facility, as well as adverse consequences for patients. The purpose of this study was to identify risk factors that may predict absconding from forensic facilities.

Methods

A retrospective review of patient records of all absconders from 2011 - 2021 was conducted in a large forensic facility in Switzerland. Sociographic and dynamic clinical variables of absconders and a control group were compared. Logistic regression analyses were used to determine the strongest predictors of absconding. Patients' motives for absconding were examined in a qualitative manner.

Results

35 patients accounted for 45 absconding during the 10-year study period. No delinquency occurred during any of the absconding. The best indicators of a patient’s risk of absconding were "expressed thoughts of absconding", "young age", "substance use/craving", "new privilege level", "history of absconding", "change in legal status", and "exacerbation of symptoms". The most frequently cited motives for absconding were "problems with the clinic team" and "craving".

Discussion

The findings suggest that dynamic risk factors encompassing patients' current functioning and short-term environmental changes are strong predictors of absconding in forensic settings.

Nr: ***19C***

BLOOD PLASMA PROTEIN PROFILES OF NEUROPSYCHIATRIC SYMPTOMS AND RELATED COGNITIVE DECLINE IN OLDER PEOPLE

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Introduction

This study tested the hypothesis that specific plasma proteome alterations could serve as biomarkers of Neuropsychiatric Symptoms (NPS); and that protein biomarker combinations predict persisting NPS and cognitive decline over time.

Methods

We performed a cross-sectional and longitudinal study in older subjects with normal or impaired cognition in a memory clinic setting. NPS and cognitive and functional impairment were assessed through the Neuropsychiatric Inventory Questionnaire (NPI-Q) and the Clinical Dementia Rating Sum of Boxes, respectively, at baseline and follow-up visits. Shotgun proteomic analysis based on liquid chromatography-mass spectrometry was conducted in blood plasma samples, identifying 420 proteins.

Results

Eighty-five subjects with a mean age of 70 (± 7.4) years, 62% female, and 54% with cognitive impairment were included. We found 15 plasma proteins with altered baseline levels in participants with NPS (NPI-Q score > 0). Compared to a reference model, adding those 15 proteins significantly improved the prediction of NPS (from ROC AUC 0.75 to AUC 0.91, p = 0.004). The identified proteins additionally predicted both persisting NPS and cognitive decline at follow-up visits (mean = 41 months).

Discussion

These findings show the potential of untargeted proteomics to identify blood-based biomarkers of pathological alterations relevant for (persisting) NPS and related clinical disease progression.

Nr: ***20C***

A 40µg DOSE OF SUBLINGUAL DEXMEDETOMIDINE PROMOTES SLEEP IN MEN WITH SUBCLINICAL INSOMNIA

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Introduction

Dexmedetomidine (DMTN) is an α_2 adrenoceptor agonist approved for *i.v.* use in highly monitored clinical settings that may promote physiological sleep. We investigated the pharmacokinetic/ pharmacodynamic profile of oro-dispersible tablets (ODT) for sublingual DMTN delivery.

Methods

17 young men with subclinical insomnia completed an adaptation and three experimental nights in the laboratory. At bedtime, 20 and 40 µg DMTN and placebo were administered in randomized, double-blind fashion. Measurements included blood sampling during all-night polysomnographic sleep recordings, and cardiovascular functions, subjective state and vigilance upon awakening. Variables were analyzed with generalized linear mixed-models adjusted for multiple comparisons.

Results

Maximal DMTN levels of 0.11±0.02 (20µg) and 0.24±0.06 ng/ml (40µg) were reached at 1.04±0.39 and 1.48±0.42 h following intake, and half-life times equaled 2.95±0.79 and 3.68±1.90 hours. Compared to placebo, 40µg DMTN shortened sleep latency (32.4±18 vs. 21.3±21.15 min; $p<0.05$), while 20 and 40µg DMTN delayed REM sleep (139.5±82.4 *vs*. 173.87±45.8 *vs.* 242.0±80.0 min; $p<0.05$ and $p<0.001$). Sleep efficiency, post-awakening vital signs, subjective state and cognitive performance were not affected.

Discussion

Our newly developed ODT formulation demonstrates rapid delivery, precise systemic availability, and highly reliable dose-proportional DMTN concentrations during sleep, providing a powerful tool to study adrenergic mechanisms of sleep-wake regulation.

Nr: ***21C***

FORENSIC-PSYCHIATRIC RISK ASSESSMENT IN GENERAL PSYCHIATRIC CLINICS: ZURICH LIAISON SERVICE MODEL TO SUPPORT TREATMENT OF PATIENTS PRONE TO COMMIT VIOLENCE

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Introduction

A subgroup of psychiatric patients exhibits an increased risk for interpersonal violence. Some of these patients have had contact with the general psychiatric care system years before committing violent acts. Nevertheless, attempts to establish crime or violence prevention in psychiatry remain sparse. To remedy this shortcoming, a specific forensic psychiatric consultation liaison service was implemented in the canton of Zurich.

Methods

In this evaluation, we describe the consultation service's diagnostic and advisory offers and aim to characterize the patient population. Consultation reports were analyzed retrospectively. We compared the three most common diagnostic groups (schizophrenic, affective and personality disorders) regarding reason for consultation, history of violence and substance abuse and the psychiatric recommendations designed to reduce risk for interpersonal violence.

Results

Since 2012, 188 patients in general psychiatric clinics were examined by the service. A majority of these patients had a positive history of violence (72.7%) and substance abuse (66.1%). Almost half of the patients (48.4%) were diagnosed with schizophrenic disorders.

Discussion

Results of the evaluation are discussed in context of current research and prospective practical implications. In addition to the strain on involved personnel, patients with violent behaviors themselves endure considerable suffering, which should be addressed during general psychiatric treatments.

Nr: ***22C***

DIFFERENTIAL EFFECTS OF THE CHRONIC USE OF EITHER METHAMPHETAMINE ("CRYSTAL METH") OR MDMA ("ECSTASY") ON SOCIAL COGNITION AND SOCIAL BEHAVIOR

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Introduction

Despite their close structural similarities, methamphetamine (METH) and 3,4-methylenedioxymethamphetamine (MDMA) have different psychotropic effects most likely related to their specific neurochemical actions. While for both substances the chronic use has been associated with cognitive deficits such as elevated impulsivity, earlier studies indicate a significant difference in their impact on social cognitive functions. The present study aims to directly compare the chronic effects of these drugs on different aspects of social cognition and behavior

Methods

The performance of healthy controls (n=93), chronic METH users (n=45) and chronic MDMA users (n=46) in cognitive and emotional empathy tasks (Multifaceted Empathy Test and Face Morphing Task) and in an aggressive behavior paradigm (Competitive Reaction Time Task) was assessed.

Results

Preliminary analyses revealed elevated punitive behavior as well as poorer performances in cognitive and emotional empathy subtasks for METH users compared to both healthy controls and MDMA users. Conversely, MDMA users only differed from healthy controls in their sensitivity to facial emotions in that they rated a relatively happy face as neutral.

Discussion

Our preliminary results primarily indicate a significant impairment in several facets of social cognition and behavior for chronic METH users. Detailed results will be presented and discussed at the Burghölzli Psychiatry Meeting.

Poster Abstracts

Topic D: Clinical Trial Research

Nr: ***1D***

EMBRACING VULNERABILITY AS A SALUTOGENIC FACTOR IN PSYCHEDELIC ASSISTED PSYCHOTHERAPY

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Introduction

Vulnerability is a state of physical or psychological weakness and uncertainty, which all humans experience throughout their life. While all humans are affected by personal weaknesses, the emotional and behavioral reactions to it can vary dramatically across individuals. Thus, understanding the pathogenic and salutogenic aspects of a persons' reaction when exposed to their personal vulnerabilities constitutes a key element in psychotherapy.

Methods

The trial aims at investigating the effects of a synthetic Ayahuasca analogue on self-referential emotions in 48 healthy volunteers, that are exposed to personal vulnerabilities. The volunteer's reaction to personal or foreign vulnerability exposure will be examined by sequentially presenting the 5 personal audio sequences in conjunction with the participant's portrait (self-condition) and 5 foreign audio sequences in conjunction with portraits of foreign people (other condition)

Hypotheses

Study drug administration is expected to lead to a general reduction of aversive emotions in light of exposed vulnerabilities. Low dose administration is expected to show higher ratings of aversive emotions during self-stimuli compared to other-stimuli presentation. The study drug induced increases of self-compassion, self-acceptance and self-connectedness are expected to correlate with adaptive attitudes/behaviors towards own vulnerabilities.

Nr: ***2D***

CHANGES IN ACCUMBAL-THALAMIC FUNCTIONAL CONNECTIVITY ASSOCIATED WITH ACCUMBAL GLUTAMATE ALTERATIONS UNDERLIE HUMAN COCAINE CRAVING

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Introduction

Craving is a core symptom of cocaine addiction and a major factor for relapse risk. To date, there is no pharmacological treatment for cocaine addiction. In animal models, changes within the reward network in association with altered glutamate signalling appear to underlie cocaine craving. In humans, evidence for a corresponding pathophysiology is scarce.

Methods

In this randomized, placebo-controlled, double-blinded, cross-over study, using resting state functional magnetic resonance combined with proton magnetic resonance spectroscopy, network-level and neurometabolic changes were assessed during a non-craving and a cue-induced craving state in 18 cocaine-addicted and 23 healthy individuals. Additionally, we assessed the impact of N-acetylcysteine, known to normalize disturbed glutamate homeostasis in animal models of addiction.

Results

We found increased functional connectivity between the nucleus accumbens and the dorsolateral prefrontal cortex and the midline thalamus during a cue-induced craving state. Cocaine craving during past weeks and the actual intensity of cocaine use predicted cue-induced changes in accumbal-thalamic functional connectivity, which were also coupled with cue-induced accumbal glutamate increase. However, N-Acetylcysteine had no restoring effect on those alterations.

Discussion

These results suggest that connectivity changes within the fronto-accumbal-thalamic loop, in conjunction with impaired glutamatergic transmission, underlie cocaine craving, pinpointing the thalamus as a crucial hub for cocaine addiction.

Nr: ***3D***

MODERATORS OF SEXUAL RECIDIVISM AS INDICATOR OF TREATMENT EFFECTIVENESS IN PERSONS WITH SEXUAL OFFENSE HISTORIES: A META-ANALYSIS

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Introduction

We present an update of the meta-analysis by Schmucker and Lösel [Campbell Syst. Rev. 2017; 13: 1–75], which synthesized evidence on sexual recidivism as indicator of treatment effectiveness in persons with sexual offense histories.

Methods

The updated meta-analysis included 37 samples comprising a total of 30,394 offenders, which is nearly three times the sample size reported by Schmucker and Lösel (2017; 29 samples, 10,387 offenders).

Results

The mean treatment effect indicated a small reduction of sexual recidivism with an odds ratio of 1.54 [95% CI 1.22, 1.95] ($p < .001$). A moderator analysis suggested three predictors of importance, i.e., offender risk level, treatment specialization, and author confounding. Greater treatment effectiveness was suggested in high- and medium- compared to low-risk offenders and in specialized compared to non-specialized treatments. Authors affiliated with treatment programs reported larger effectiveness than independent authors. These findings were overall in line with Schmucker and Lösel (2017), though the effects of offender risk level and treatment specialization became stronger. The updated meta-analysis thus sharpened the evidence on the importance of these moderators and reinforced the first and second principle of the Risk-Need-Responsivity (RNR) model.

Discussion

The results may support researchers and decision-makers in interpreting sexual recidivism as indicator of treatment effectiveness in persons with sexual offense histories.

Nr: ***4D***

COSIMO – AN ONLINE-BASED SCREENING TOOL FOR SOCIAL COGNITION

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Introduction

Social cognition refers to how a person perceives other peers in their social space, i.e., their understanding of discrete and direct communicatory signals from others. It was included in the DSM-5 nearly a decade ago and is a highly relevant neurocognitive domain. Still, social cognition is rarely accounted for in clinical diagnostic processes of neurological patients. One possible reason for this is the lack of reliable, short assessment tools.

Methods

We are developing a screening tool based on the strengths and weaknesses we have experienced in previously existing tests of social cognition. We have focused on including ecologically valid and ethnically and sexually diverse stimuli, which we collected from series and films, and are gathering objective data to generate fitting responses.

Results

Thus far, the 75 best items out 1200 have been selected for further evaluation based on responses from 1000 participants. An fMRI study comparing the videos to a rest condition revealed activation similar to that in literature on social cognition. We are now collecting norm data.

Discussion

Our aim for COSIMO (Cognition of Social Interaction in Movies) is to offer a simple screening tool of social cognition in muted video vignettes of dyadic interactions.

Nr: ***5D***

Brief intensive group-based (BIG-CBT) for youth with OCD: Results from two international pilot studies

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Introduction
Evidence of efficacy for intensive treatment using the method of exposure with response prevention can be found mainly for the adult setting (Havnen et al, 2014; Hansen et al, 2018), but also in the pediatric setting (Riise et al, 2019). This brief intensive group cognitive behavioral therapy protocol (BIG-CBT) was developed in Amsterdam LEVVEL and consists of five consecutive days of group CBT with exposure and response prevention as core elements.

Methods
We present two international pilot studies into BIGCBT for pediatric OCD investigated treatment outcome of BIG-CBT in two countries. The pilot studies were carried out in academic centers for child and adolescent psychiatry. A retrospective study (study 1) was executed in the Netherlands (N=59), a prospective study (study 2) in Switzerland (N=27) (total: 86 participants). BIG-CBT consisted of 5-day CBT in a group format (usually 4-8 participants), with a maximum 2:1 ratio participantstherapists. In the Swiss Study the BIG-CBT treatment for children and adolescents with OCD «In the future without OCD» was provided in a standardized way, using a group format (usually 4-8 participants) (Fig. 1). The repeated measures ANOVA and paired t-test were applied to test the diffrences in the CY-BOCS scores across timepoints, while the multiple linear regression tested the predictors of CY-BOC symptom change. Targets of the week to be achieved:

- Intensive exposure and response prevention exercises in singular and group settings
- Encouraging support for each other against the interference of OCD
- Focus on the individual’s personal target during the intensive treatment week with a therapist

Results
Both studies showed a pre-post treatment reduction in mean CY-BOCS scores in just one week (Table 1). Participants from study 1 reported significantly lower CY-BOCS scores at post-treatment (M=18.1; SD=7.0) than at pre-treatment (M=25.4; SD=5.3), $t(58) = 9.35$, $p < .001$.
Effect size (Cohens d) for the CY-BOCS was 1.22. Participants from study 2 reported significantly lower CY-BOCS scores at post-treatment (M=12.6; SD=5.7) and at 3-month-follow-up (M=14.7; SD=5.1) than at pre-treatment (M=20.9; SD=4.9) (Table 1).
The effect between pre- and post-treatment and between pre- and 3-months-follow-up were significant ($F(2, 52)=50.68$, $p < .001$, $\eta p2 = 0.66$) (Fig. 2-4). The effect size for the CY-BOCS pre-post (d) was 1.74, and for Over all participants at both sites, nearly pre-
3months-follow up (d) was 1.45. 50% showed a CYBOCS score below the clinical cut off (Table 2). Age and gender did not predict treatment outcome.

Discussion

Both studies showed a significant decrease from pre-to post-treatment on the CY-BOCS mean scores. In study 1, 44% of participants met the criterion for treatment responder at post-treatment (≥35% improvement), in study 2 this was 56% at post-treatment and 37% at 3-months-follow-up (Table 2). In both studies, age, gender and baseline OCD severity did not significantly predict treatment outcome. Despite the naturalistic settings and the lack of control group we consider the present findings of these two international pilots to be promising, indicating that the BIG-CBT could have added value to a standard clinical care for youth with OCD.

Nr: ***6D***

THE EFFECTS OF EQUINE-ASSISTED THERAPY ON SOCIAL FUNCTIONING, NEGATIVE SYMPTOMs and Quality of Life IN PATIENTS WITH SCHIZOPHRENIA: a PROSPECTIVE RANDOMIZED CONTROLLED STUDY

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Introduction

The negative symptoms of schizophrenic patients are difficult to treat compared to the positive symptoms, especially with medication. Negative symptoms are associated with a poor psychosocial functioning level of the patients. A common psychosocial intervention method for various mental illnesses is animal or equine assisted therapy. We aimed to examine the effectiveness of the human-horse relationship on quality of life and psychosocial functioning level and to understand physiological and behavioral indicators of the change such as voice.

Methods

Equine-assisted intervention was compared with control intervention Social Activities. We assessed symptoms with BNSS, PSP-Scala, S-QoL and speech patterns in schizophrenic patients (N=16) with audio records. Additionally, qualitative methods were performed using MAXQDA analysis. Changes in voice were examined using multi-dimensional vocal features (e.g. MFCCs) and applying feature-reduction (PCA, t-SNE) to understand differences between treatment groups.

Results

The results showed a positive trend for the improvement of negative symptoms and subjective quality of life. For the psychosocial functional level, we found effects for Social Activities.

Discussion

The combination of quantitative and qualitative analysis, especially our new approach, speech analysis, provides a new angle on negative symptomatic in schizophrenia. Our results may help identify vulnerable individuals and offer tailors implications for reducing negative symptoms and developing more quality of life.

Nr: ***7D***

NETWORK ANALYSES OF ECOLOGICAL MOMENTARY EMOTION AND AVOIDANCE ASSESSMENTS DURING TRANSDIAGNOSTIC COGNITIVE BEHAVIOR THERAPY

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Introduction

Negative emotions are at the core of emotional disorders and associated with avoidance behavior. Current treatment approaches aim to weaken this link and resolve dysfunctional patterns. Precise interactions between emotions and avoidance in patients' everyday life, however, and changes underlying effective treatment remain unclear.

Methods

Ninety-three patients with anxiety disorder were randomly assigned to a CBT or wait-list condition. The CBT group underwent 16 sessions according to the Unified Treatment Protocol. Participants completed ecological momentary assessments via smartphone over 14 days before, during, and after treatment, rating the occurrence of negative emotions and avoidance behaviors within the past 30 minutes. We compute multilevel vector autoregressive models to examine relations between emotions and avoidance within patients from one time point to the next and within a single time point. By comparing separate models based on data collected before, during, and after treatment, we test whether associations between emotions and avoidance are reduced over treatment.

Results

We expect reductions in concurrent negative emotions and avoidance behaviors and reductions in time-lagged associations to prove beneficial.

Discussion

Our results elucidate the processes during successful treatment, which helps improve the efficacy of CBT, personalize treatment and, ultimately, reduce the burden of mental disorders.

Nr: ***8D***

TRAUMA MEMORY MODULATION BY POST-TREATMENT SLEEP IN PATIENTS WITH PTSD AND SUBTHRESHOLD PTSD

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Introduction

Sleep plays a central role in memory formation and is thought to benefit the consolidation and integration of a traumatic experience into memory. We aim to investigate whether sleep after a trauma-focused intervention can augment its effects in patients with (subthreshold) PTSD.

Methods

In the current ongoing randomized-controlled trial at the Psychiatric University Hospital Zurich, we will include 30 inpatients with (subthreshold) PTSD. Patients participated in three sessions of written exposure therapy and were randomly allocated to a 90-minutes sleep group or a wake group following therapy. PTSD symptoms were assessed in an interview by a clinician (CAPS-5) or in self-rated questionnaires (PCL-5).

Results

Preliminary analyses of 12 patients revealed a significant overall reduction in PCL-5 scores [$F(3, 18) = 3.24$, $p < .05$] and 50% showed a clinically significant decrease (>10) in the CAPS-5 at follow-up. No significant main effect of group (sleep vs. wake) was observed ($p > 0.05$). These analyses are yet underpowered and will be repeated with the full sample ($N = 30$).

Discussion

The preliminary findings indicate that brief written trauma-focused intervention is promising in reducing PTSD symptoms in severely ill psychiatric patients. Augmentation of therapy by sleep has the potential to be the promising intervention enhancing psychotherapy.

Nr: ***9D***

ORAL PROLONGED-RELEASE KETAMINE IN TREATMENT-RESISTANT DEPRESSION - A DOUBLE-BLIND RANDOMIZED PLACEBO-CONTROLLED MULTICENTER TRIAL OF KET01, A NOVEL KETAMINE FORMULATION

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Introduction

We investigated the antidepressant effects of a novel oral prolonged-release formulation of racemic ketamine (OKR) in patients suffering from treatment-resistant depression (TRD).

Methods

Depressed inpatients were randomized to 160 mg/d or 240 mg/d OKR or placebo for 14 days as adjunctive treatment. The primary endpoint was defined as change in Montgomery-Åsberg Depression Rating Scale (MADRS) score from baseline to day 15. We used analyses of variance (ANOVA) with pairwise least-squares mean difference tests.

Results

Twenty-seven patients (n=7, n=10, n=10) completed the double-blinded treatment. Mean (SD) baseline MADRS score was 31 (± 5.88). Mean MADRS scores on day 15 were 25 (160 mg/d), 17 (240 mg/d) and 23 (placebo). The change in MADRS score on day 15 in the 240 mg/d group was larger than in the placebo group (mean difference=-4.99, *P*=.15). Additionally, data suggests a rapid onset of action in the 240 mg/d group, with clinically meaningful improvement of -5.67 (mean change, *P*=.11) after seven days compared with placebo.

Discussion

The group of 240 mg/d patients show a positive trend of antidepressant efficacy. Given the ease of application and relatively few side effects, this route of ketamine administration may be promising for the treatment of TRD.

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