Symposium: Social science and biological findings informing research in suicidal behavior

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Electrodermal reactivity and suicide

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Electrodermal Activity (EDA) refers to changes in electrical conductance of the skin. Electrodermal hyporeactive individuals are those who show an unusual rapid habituation to identical non-significant stimuli. Previous findings suggested that electrodermal hyporeactivity has a high sensitivity and a high negative predictive value for suicide. The aim of the present study is to test the effectiveness and the usefulness of the EDOR® (ElectroDermal Orienting Reactivity) Test as a support in the suicide risk assessment of depressed patients.

One thousand five hundred and seventy three patients with a primary diagnosis of depression, whether currently depressed or in remission, have been recruited at 15 centres in 9 different European countries. Depressive symptomatology was evaluated through the Montgomery-Asberg Depression Scale. Previous suicide attempts were registered and the suicide intent of the worst attempt was rated according to the first eight items of the Beck Suicide Intent Scale. The suicide risk was also assessed. During the EDOR® Test two fingers are put on gold electrodes and a moderately strong tone is presented through headphones now and then during the test. The EDOR® Test is able to register the electrodermal responses to those tones, along with the blood volume in the fingers. Each patient is followed up for one year in order to assess the occurrence of suicidal behaviors.

Expected results would be that patients realizing a suicide attempt with a strong intent or committing suicide should be electrodermally hyporeactive in most cases and non-hyporeactive patients should show only few indications of death intent or suicides. Preliminary findings will be presented.

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Neural patterns in ecological momentary assessment of social stressors

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Background Suicidal behaviors result from a complex interaction between social stressors and individual vulnerability. Ecological Momentary Assessment (EMA) provides the opportunity to investigate the relationship between social stressors in daily life and the occurrence of negative thoughts leading to suicidal ideation. fMRI showed that a neural network supports the sensitivity to social stressors in suicide attempters.

Objective A joint fMRI/EMA study investigated whether individual differences in brain reactivity to scanner-based social rejection was related to social rejection during real-world social interactions.

Method Sixty women were included: euthymic women with a history of depression with or without suicidal behavior and healthy controls. The Cyberball Game was used as a social exclusion paradigm. Following the fMRI, subjects used EMA for seven days, providing data on environmental, contextual and emotional factors.

Results In the fMRI study, in comparison to patients without any history of suicide attempt and healthy controls, suicide attempters showed decreased activation in the posterior cingulate cortex, insula and superior temporal gyrus during the exclusion vs. inclusion condition. In the EMA study, social stressors were specific predictors of suicidal ideation in suicide attempters. We will examine here if individuals who show greater activity in specific brain regions during scanner-based social rejection reported a greater social distress during their daily social interactions.

Conclusions this study used a combined technique to assess whether neural reactivity to experimental social rejection in the scanner is related to real-world social experience, and if it may help to understand the sensitivity to social stress in suicidal behavior.

Disclosure of interest The authors declare that they have no competing interest.

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S136

A review of advances in social sciences and their application for research in suicidal behavior

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Suicidal behavior and its prevention constitute a major public health issue, and the moderating effect of sociodemographic factors has been studied for more than a century. In the last years it has become evident that the relationship between social factors and suicidal behavior is complex and highly dependent on the context. For instance, minorities suffering marginalization, such as the Inuit in Canada or the aborigines in Australia, present high rates of suicide. However, other minorities, such as immigrants arriving to tightened communities, can be protected from suicide compared to the social majority. Other contradictory effects have been reported concerning income per capita and the evolution of the economy. Unfortunately, the interplay of social factors in suicidal behavior and the social consequences of suicide attempts are rarely represented in theoretical models of suicidal behavior, despite their importance to adapt suicide prevention policies to social groups at risk. In this presentation, recent advances and new and integrative avenues for future research in the social aspects of suicidal behavior will be summarized.

Disclosure of interest The author declares that he has no competing interest.

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S137

MicroRNA profiling in postmortem brain and plasma exosomes: Biomarker perspective of suicidality

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Introduction Suicide is a leading cause of death. Although research on the biological aspects of suicide is accumulating, there is no testable biomarker to assess suicidality. miRNAs, small non-coding RNAs, have been implicated in synaptic plasticity, genetic susceptibility to stress and coping to stress response. Because of the presence of microRNAs in circulating body fluids, miRNAs can not only be used as regulators of disease pathologies but also in prognosis and treatment response.

Objectives Whether miRNAs can be used as biomarker for suicidality.

Aims To examine miRNA expression in brain of suicide victims and in plasma exosomes of suicidal individuals.
Methods microRNA expression was studied in prefrontal cortex of depressed suicide subjects and healthy normal controls. Role of microRNAs in synaptic plasticity was studied by examining total and synaptonerosomes. microRNA expression was also studied in plasma exosomes of depressed non-suicide and depressed suicide subjects and healthy normal controls.
Results We found a global down–regulation of miRNAs in depressed subjects (21 miRNAs significantly down-regulated). Many of them were synaptically enriched and encoded at nearby chromosomal loci, shared motifs within the 5'-seeds, and shared putative mRNA targets. In addition, we found a dramatic reorganization of microRNAs in a coordinated and cohesive fashion in depressed subjects. We also detected changes in miRNAs in plasma exosomes of depressed suicide subjects that corresponded to microRNA changes in prefrontal cortex.
Conclusion Our study provides critical evidence that microRNAs play a major role in suicide pathophysiology and that these microRNAs can be reliably used as peripheral biomarker.
Disclosure of interest The author declares that he has no competing interest.

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Symposium: Driving ability and psychotropic drugs

S138

Driving ability and psychotropic drugs: Introduction, epidemiology and general aspects

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Psychiatric illness, psychotropic drugs and driving ability. For most people driving is an important activity in daily life affecting physical, social, and economic well-being. Driving mobility is also an important part of one's self-identity that may influence health status. It could be demonstrated that 67% of psychiatric patients reported to have a valid driver's license and 77% of them referred to regularly use their cars. Closer inspection of data reveals, that road mobility is largely linked to psycho-functional status. In this context a significant issue is the impact of medical conditions and/or psychoactive medicines on road safety. Psychiatric patients, considered as a group, seem to have a moderately elevated risk of being involved in a road traffic accident with high-risk rates especially for organic mental disorders. With respect to pharmacotherapy, within psychotropic medicines an increased road traffic crash risk for benzodiazepines, z-hypnotics and some antidepressants has been well documented. The combination of psychoactive drugs additionally increases risk that is highest when combined with alcohol. However, therapeutic drug use may also lower risk, as the illness itself constitutes a higher risk of road traffic accidents. As many studies did not adequately control for confounding factors, results of epidemiological studies must be interpreted cautiously.
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S139

Antipsychotics and driving ability

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Driving a vehicle is an important everyday life skill associated to a psychiatric patient's autonomy and identity. Nevertheless, the right to drive is not a right at all, it is a privilege granted and regulated by rules and restrictions from the States that have also the duty to pull this privilege and deny the ability to legally drive in potentially unsafe drivers. The decision about for whom and when to forbid driving is a difficult matter of judgment that must remain a clinical and professional judgment within the medical encounter. Both antipsychotics as the psychiatric disorders target of these psychoactive drugs produce changes of psychomotor performance that can interfere with the ability to drive safely. Moreover, it is really hard to distinguish between the effects of the disease itself as opposed to the effects of the medication when studying the interaction between antipsychotics and driving ability. Previous results of our research in the field indicate that psychiatric patients who improved clinically after drug treatment also showed improvements in driving ability. So, adequate psychotropic treatment causes a positive effect on driving performance that outweighs the possible deleterious effect of medication. However, it remains essential to supply mental health professionals with new information, which is quantitatively and qualitatively valid, on the role of antipsychotics in driving ability. The purpose of the present lecture is to review research undertaken to-date on the effects of antipsychotic medications on driving ability. A search of various databases, including Medline, Embase and PsycInfo, will be conducted.
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Antidepressants and driving ability

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Depression is a mental disorder that is likely to affect daily functions, including driving ability. However, driving performance of depressed patients remains poorly investigated. We will present 2 studies designed to assess driving performance of patients receiving long-term antidepressant treatment. The first study compared driving performance of untreated depressed patients, depressed patients receiving SSRI or SNRI treatment for 6–52 weeks and matched healthy controls. The second study compared driving performance of long-term users of sedative antidepressants to that of matched healthy controls. A standardized on-the-road driving test was used to assess standard deviation of lateral position (SDLP), a measure of weaving. In the first study, mean SDLP of untreated and treated patients were significantly higher as compared to SDLP of matched controls. Driving impairment in the treated group was significantly less as compared to the untreated group. SDLP was positively correlated to severity of depression across both groups of patients. In the second study, SDLP of patients receiving sedative antidepressants (e.g. mirtazapine) during 0,5–3 yrs was significantly higher as compared to matched controls. Driving performance of patients receiving sedative antidepressants for more than 3 yrs did not differ from matched controls. Severity of depression in these patients groups was low. It is concluded that symptoms of depression are a major cause of driving impairment. Reductions in severity of depression through antidepressant treatment reduce severity of driving impairment. Sedative antidepressants such as mirtazapine however can still induce driving impairment in patients with remission for up to 3 yrs of use.