Introduction: Depression is a common psychiatric disorder and chronic stress is considered its main environmental risk factor. Recently, immune processes including adenosine triphosphate mediated P2X7 receptor (P2X7R) signalling via microglia and macrophages (M/Ms) were found to play a critical role in depression genesis, by linking environmental stress to depression biology and symptoms.
Objectives: To characterize the role of human P2X7R (hP2X7R) in psychosocial and immune stress conditions, both in vitro and in vivo.
Methods: Several, custom designed mouse lines expressing the loxP-flanked, hP2X7R-sequence in the murine P2X7R locus were established. In addition, these mice possess a Cre-sensitive reporter and express a Cre recombinase fused to a mutant estrogen receptor ligand-binding domain in M/Ms. This enables conditional, tamoxifen-inducible hP2X7R inactivation and simultaneous tdTomato expression. First, we established primary microglia cell cultures and characterized them at baseline and following immune stimulation. Next, we performed behavioural assessment of $hP2X7R^{wt}$ and microglia-specific $hP2X7R^{KO}$ mice following chronic psychosocial stress. Last, we developed a novel in vivo two-photon microscopy (TPM) approach by use of frontolimbic cranial windows.
Results: Primary $hP2X7R^{KO}$ microglia displayed significantly lower IL-1β production, increased survival and decreased morphological activation upon immune stimulation. Although $hP2X7R^{KO}$ mice showed a significant increase of locomotor activity at baseline, there was no impact on anxiety- and depressive-like phenotypes. Longitudinal in vivo TPM enabled morphometric characterization of cortical M/Ms over several weeks.
Conclusions: Our results illustrate the great potential of this humanized mouse line for translational psychiatry. In the future, this system could proof useful to evaluate immunomodulatory approaches in chronic stress and depression.

Disclosure: No significant relationships.
Keywords: Genetically engineered mouse models (GEMMs); chronic stress and depression; human P2X7 receptor; translational neuropsychiatry

EPP0775

Fatal drug poisonings in an industrial region of the Far North of Russia

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Introduction: Drug poisonings is a continuous public health problem in Russia and worldwide.
Objectives: The objective of the study was to provide characteristics of lethal drug poisonings in a northern Russian region.
Methods: The data on deaths from drug poisoning that occurred between 2018 and September 2021, systematically collected by the Regional Center on the Organization of the Narcological and Psychiatric service of the Khanty-Mansi Autonomous Okrug of Russia, was analyzed.
Results: Among 220 cases of fatal drug poisoning the overwhelming majority (90.4%) occurred among males. The number of cases increased annually from 27 in 2018 to 71 in 2020. The average age of death increased from 33.6 years in 2018 to 38.2 years in 2021. Over two thirds of deceased (70.9%) had complete secondary or vocational secondary level of education, almost one third (30.0%) were skilled workers, and slightly less than half (44.1%) were unemployed. The most common causes of death were methadone poisoning (34.5%), poisoning with other opioids (21.8%), other synthetic drugs (17.3%), other unspecified drugs (11.8%), and psychostimulants (10.0%). Alcohol intoxication was identified as a concomitant cause of death in every fourth case (26.0%), of which 98% were among males. Most often, alcohol was present in the blood at a concentration of 120 mg/ml and above. Every fourth deceased (23.6%) was registered with narcology health service for drug addiction.
Conclusions: Fatal poisonings with narcotic drugs and psychotropic substances is a growing public health problem in a northern industrial region of Russia, which affects predominantly working-age males and requires comprehensive multisectoral response.

Disclosure: No significant relationships.
Keywords: drug poisoning; Russia; overdose deaths; drugs

EPP0776

Psychoactive substance use among medical residents in Tunisia

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Introduction: Recent studies in the word found an increase of substance use among medical students.
Objectives: To determine the prevalence of substance use and associated factors among medical residents in Tunisia.
Methods: It was a descriptive and analytical cross-sectional study among medical residents from the 4 medical faculties of Tunisia. A questionnaire was created from Google Forms and was published on the social network Facebook. We asked about the current consumption of different psychoactive substances. We used the Patient Health Questionnaire (PHQ-9) to identify depressive symptoms.
Results: The sample included 241 residents. The female sex was predominant (83.4%, n = 201). The average age was 28.18 (± 2.13) years. Among these residents, 27.8% (n = 67) currently consume at least one psychoactive substance and 71% (n = 171) had depressive symptoms. The substances consumed by residents were: tobacco 18.7% (n = 45), alcohol 18.7% (n = 45), cannabis 6.2% (n = 15) , amphetamine 3.3% (n = 8), sleeping pills (without medical prescription) 2.9% (n = 7), hallucinogens 2.9% (n = 7), cocaine 2.1 % (n = 5) and inhaled solvents 0.4% (n = 1).
The use of at least one psychoactive substance was significantly associated with male sex (p = 0.01), the presence of financial problems (p = 0.08), lack of religiosity (p <0.001), feeling of life dissatisfaction (p = 0.01), uncertainty about life events (p = 0.05) and the presence of depression (p = 0.018).