

## EPP0333

**Protective effect of lithium pyruvate against oxidative damage to peripheral blood mononuclear cells**L. Smirnova<sup>1\*</sup>, E. Epimakhova<sup>1,2</sup>, E. Plotnikov<sup>1,3</sup> and I. Losenkov<sup>1</sup><sup>1</sup>Laboratory of Molecular Genetics and Biochemistry, Mental Health Research Institute, Tomsk National Research Medical Center of the Russian Academy of Sciences; <sup>2</sup>Division of Biology and Genetics, Siberian State Medical University and <sup>3</sup>Research School of Chemistry & Applied Biomedical Sciences, Tomsk Polytechnic University, Tomsk, Russian Federation

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**Introduction:** In recent years, there has been renewed interest in lithium therapy due to emerging evidence of the protective effects of lithium against neuronal death caused by a wide range of neurotoxic effects. Oxidative stress is a common pathway that is involved in various pathologies. In this regard, the development and study of new lithium compounds with combined antioxidant effects becomes relevant. Pyruvate has many potential benefits due to its positive effects on cellular metabolism.

**Objectives:** The purpose of this study was to study lithium pyruvate on blood cells of healthy donors under conditions of induced oxidative stress.

**Methods:** The study used blood from 20 healthy control group volunteers, aged 25 to 54 years. Venous blood was taken at baseline and then used for PBMCs extraction. After that cells were incubated during 24 hours in RPMI 1640 medium at 37°C and 5% carbon dioxide concentration. For oxidative stress induction hydroperoxide of trisubstituted butyl (HTB) was used in concentration of 50 µM. Cells were also incubated with lithium pyruvate in final concentration of lithium ions of 1.2 mM with or without HTB. Level of oxidative stress in culture was assessed by flow cytometer «Muse Cell Analyzer» (Merck Millipore, Germany) using «Oxidative stress» reagents kit (Merck Millipore, Germany). Statistical analysis was performed using the SPSS software, release 20.0 for Windows.

**Results:** Percentage of cells with reactive oxygen species (ROS) cultivated with HTB (65,33 (41,95-79,30) %) was statistically significant higher compared to intact cells (11,03 (7,93-15,53) %) ( $p=0.001$ ). After addition of lithium pyruvate in culture statistically significant antioxidant effects were observed. In PBMCs incubated with HTB and lithium pyruvate statistically significant decreased percentage of cells with ROS (42,70 (16,73-58,70) %) ( $p=0.001$ )

**Conclusions:** A pronounced antioxidant effect of lithium pyruvate under induced oxidative stress on human peripheral blood mononuclear cells has been established. Lithium pyruvate can be considered as a promising psychotropic antioxidant for further experiments.

**Disclosure of Interest:** None Declared

## EPP0334

**Case series and Literature review – Clozapine Induced Transient Myocarditis. Clinical characteristics and outcomes**

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**Introduction:** Clozapine is a second-generation atypical antipsychotic medication used in patients with treatment-refractory schizophrenia. Its use is limited due to its associated adverse effects, including myocarditis. These adverse effects may have variable presentations, such as myocarditis transient or persistent, and a generalized inflammatory process. Thus, clinical monitoring to inform accurate diagnosis is essential to avoid unnecessary discontinuation of clozapine, leading to psychiatric decompensation.

**Objectives:** To review clinical features of clozapine induced Myocarditis and accurately identify signs and symptoms attributed to be most specific for myocarditis and determine at what stage clozapine should be discontinued.

**Methods:** We conducted a literature review on PubMed, MeSH, google scholar and Mount Sinai's Levy Library using keywords, clozapine, drug related side effects, adverse reaction, myocarditis, treatment resistant schizophrenia. Review of two cases series was done.

**Results:** A review of 15 articles that addressed the cardiac complications of clozapine was performed. This review provides a base on variable clinical characteristics and outcomes of clozapine – induced Myocarditis. It showed patients who had myocarditis ruled out, demonstrated high prevalence of systemic signs of inflammation such as fever, malaise, tachycardia and elevated c-reactive protein. However, despite clozapine maintenance in most, this systemic response subsided without any intervention. A nonspecific inflammatory response is common when initiating clozapine, this inflammatory “clozapine storm” occurs within the first month of initiation and is not necessarily predictive of myocarditis. These patients were monitored closely. Those confirmed with clozapine- induced myocarditis using echocardiography and cardiac magnetic resonance imaging were managed with dose reduction, laboratory monitoring, vital signs check, with early initiation of beta-blockers without discontinuation of clozapine, with improvement in their laboratory results and vital signs. Those with progressive clinical signs of myocarditis required immediate cessation of clozapine.

**Conclusions:** We are proposing a critical need for a multidisciplinary team of psychiatrists, cardiologists and pharmacists collaborating to prevent premature termination of clozapine in cases of treatment-refractory schizophrenia. Our cases showed middle aged patients with treatment - refractory schizophrenia, presenting with symptoms suggestive of clozapine induced- myocarditis, few weeks after initiation. Clozapine was continued with close monitoring, as symptoms resolved. Though clozapine is associated with myocarditis, with proper knowledge on guidelines for monitoring patients, it can mitigate unnecessary discontinuation of clozapine in those patients.

**Disclosure of Interest:** None Declared

**Psychosurgery and Stimulation Methods (ECT, TMS, VNS, DBS)**

## EPP0335

**Gender differences in the effect of rTMS with the H7-coil on physical and social anhedonia in schizophrenia spectrum disorder; a randomized, sham-controlled trial**K. Matic<sup>1\*</sup>, I. Šimunović Filipčić<sup>2</sup>, I. Orgulan<sup>1</sup>, Ž. Milovac<sup>1</sup>, Ž. Bajić<sup>1</sup> and I. Filipčić<sup>3</sup><sup>1</sup>Psychiatric Clinic Sveti Ivan; <sup>2</sup>Department of psychiatry and psychological medicine, University Hospital Centre Zagreb, Zagreb

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**Introduction:** Studies of differences in the incidence and severity of physical and social anhedonia between women and men diagnosed with schizophrenia spectrum disorder (SSD) are often inconsistent, and gender differences in treatment response have not been well studied. Hormonal factors, such as those related to the menstrual cycle, pregnancy or menopause, as well as social and cultural patterns and roles, may influence treatment response. The incidence of affective or stress-related psychiatric comorbidities may be gender-specific, which could also complicate the treatment of anhedonia and other negative symptoms of SSD. Finally, there is no evidence of sufficient quality on gender differences in the effects of rTMS, but the results are intriguing and point to the need for further research.

**Objectives:** To investigate gender differences in the effect of rTMS with the H7-coil on physical and social anhedonia in patients diagnosed with SSD with dominant negative symptoms.

**Methods:** We conducted a randomized, sham-controlled trial during 2000-2023 in the population of patients diagnosed with SSD with primary negative symptoms defined as PANSS negative symptoms subscale score > 24, and PANSS positive symptoms subscale score < 20. The intervention was HF rTMS H7 coil (Brainsway Ltd. Jerusalem, Israel) once daily for 20 days applied to the prefrontal cortex (mPFC and ACC) at 100% motor threshold with a frequency of 18 Hz, and total of 39600 pulses. The outcomes were Physical and Social Anhedonia Scales (PAS, and SAS). We controlled for the large number of relevant covariates.

**Results:** We randomized 49 men and 29 women of similar age. The effect on physical anhedonia was statistically significant in women ( $b = 9.04$ ;  $p = 0.016$ ), but not in men ( $b = 2.87$ ;  $p = 0.272$ ). The effect on social anhedonia was similar, but the difference was smaller (for men  $b = 3.71$ ;  $p = 0.082$ ; for women  $b = 5.42$ ;  $p = 0.043$ ). However, the Wald test showed no statistically significant differences between the beta coefficients for women and men.

**Conclusions:** Based on this study, it is not possible to make valid and reliable conclusions about the existence of gender differences in the effects of rTMS treatment of anhedonia with the H7 coil. However, it is possible to claim that the treatment of anhedonia with this protocol is effective in women.

**Disclosure of Interest:** None Declared

## EPP0337

### Development of a Patient-Centred Care Plan for Patients Requiring Maintenance Electroconvulsive Therapy Long-Term

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**Introduction:** Maintenance electroconvulsive therapy (ECT) can be effective and necessary in the long-term for patients with severe

and recurrent mood or psychotic disorders that are not amenable to any other forms of treatment. Patients with such treatment resistance affecting their ability to maintain minimal daily activities may eventually fall within the palliative psychiatric care domain in which advanced medical directives become an important beacon to direct care. There are Psychiatric Advance Directives which allow people with severe mental health conditions to consent to or refuse to consent to hospital admission and psychiatric treatment in the event they lose decision-making capacity and this can be especially important for a potentially controversial treatment such as ECT. However, the focus tends to be on enforcing involuntary treatment and less about a comprehensive long-term care plan. To our knowledge, there is no available framework to structure maintenance ECT as a patient-centred care plan.

**Objectives:** Our aim is to share the process of development of a patient-centred care plan for patients requiring maintenance ECT. Our objectives are:

1. Constant engagement with patients and family or caregivers
2. Regular reviews of clinical and consent aspects of treatment
3. Advocating for the welfare of patients and respect of values
4. Focus on dignity especially for patients who require treatment well into old age
5. Being prepared for termination of treatment if necessary

**Methods:** We reviewed our management of previous and existing patients on maintenance ECT and incorporated diligent consent-taking practices. Adopting good practices from known palliative approaches and involving the patient voice helped to form a framework for a patient-centred care plan.

**Results:** Our patient-centred care plan features half-yearly discussions about the risks and benefits of treatment, as well as an assessment of the patient's cognition and ability to consent which may change over time. Opportunities for them to share their values and expectations of care and engagement with their caregivers about their quality of life guide the continued treatment. A framework for discussing the disruption or eventual termination of ECT prepares for scenarios where older-aged patients may develop frailty or present with acute, prolonged or devastating medical concerns. This end-of-life care approach manages anticipated psychiatric-specific behavioural concerns and prepares for the possibility of death following the planned termination of ECT for patients who required long-term treatment throughout their life. Lastly, issues of grief amongst caregivers and ethical concerns from medical staff are addressed.

**Conclusions:** We hope that our patient-centred care plan provides a well-considered conversation and structure for the initiation, continuation and termination of maintenance ECT in the long-term.

**Disclosure of Interest:** None Declared

## EPP0338

### Empowering Minds: A Comprehensive Study of ECT Treatment in a Reference Mental Health Center in Portugal

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