

*Al collegio docenti del Dottorato in Medicina Molecolare*

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**Annual Report**

Over the past years, my research has focused primarily on the evaluation of the differences between patients with Bipolar Disorder (BD) and Major Depressive Disorder (MDD) during a major depressive episode (MDE), for the number and type of *current* depressive and comorbid hypomanic/manic spectrum items. My main goal was to evaluate if the presence of specific symptoms or features during a MDE may indicate a likely diagnosis of BD, independent on the assessment of a history of manic/hypomanic episodes. I supervised and wrote up the results of a study including 145 patients with BD and 155 patients with MDD recruited at three University Medical Centers in Italy. All study subjects met DSM-IV (and DSM-5) criteria for a major depressive episode at entry in the study, as assessed via the Mini International Neuropsychiatric Interview for DSM-IV and completed the Mood Spectrum- Self Report- Past Month (MOODS-SR-LM) questionnaire. After adjusting for age, gender, and HDRS score in multivariate ANOVA, patients with BD endorsed more items in the mood-manic/hypomanic and energy depressive subdomains of the MOODS-SR-LM questionnaire. Significant differences were also found for specific depressive and manic items, which were more frequently endorsed by patients with BD. My conclusion were that there are differences between BD and MDD in terms of the number and type of mood spectrum items that are endorsed during an acute episode of depression, which may help to identify patients with BD when a retrospective assessment is not possible or not reliable. The paper has been submitted to Bipolar Disorders and has already received constructive reviews, which we are presently addressing for a resubmission to the same journal, whose Editor has asked a minor review. I also designed and was engaged in other studies. For instance, I conducted and wrote up the results of a study evaluating Vitamin D inadequacy or deficiency (VDID) in a sample of 290 psychiatric patients admitted to inpatient or day hospital treatment at our University Hospital. Specifically, We retrospectively evaluated the prevalence of VDID in 290 psychiatric inpatients' medical records during the year 2017 and evaluated the correlates of VDID in patients with mental illness and found that 272 out of 290 patients (94%) showed VDID. Physical activity and

regular diet were positively correlated with vitamin D levels whereas age, tobacco smoking, PTH, alkaline phosphatase levels were negatively correlated. Statistically significant differences were found among smokers and non-smokers in all study groups. I concluded that VDID is highly prevalent in patients with mental illness. My study advocates vitamin D supplementation and the development of psychosocial intervention able to promote and help sustain physical activity, appropriate diet, quitting smoking and sensible sun exposure to prevent and treat VDID in patients with mental health. I also studied the relationships between microbiome, schizophrenia and treatment resistance and described the relationship between schizophrenia and immune inflammatory response and reviewed the studies about the use of probiotic and prebiotics in schizophrenia. I searched Cochrane library and PubMed from the year 2000 to 2018 for publications about microbiome, immune-mediated pathology, schizophrenia and neurodevelopmental disorders with the search string (microbiome or immune mediated) AND (schizophrenia OR neurodevelopmental disorder). I then conducted a narrative review about the use of probiotics and prebiotics in schizophrenia. I found that there exists a close relationship between the central nervous system and the gastrointestinal tract, which makes it likely that there is a relationship between schizophrenia, including its resistant forms, and microbiota. I concluded that the possibility of a role of the microbiome and of immune-mediated pathology should be better explored, not only in animal models but also in clinical trials of agents that are able to alter gut microbiota and possibly influence the mechanisms of gastrointestinal inflammation. Microbiome targeted treatments have not been well studied yet in patients with mental illness in general, and with schizophrenia in particular. Nonetheless, the field is well worth of being appropriately investigated. Apart from the studies mentioned above, I was engaged in other research studies, some of which have already generated publications which are reported below

## **References and Publications over the past 1 year**

1: Cuomo A, Ballerini A, Bruni AC, Decina P, Di Sciascio G, Fiorentini A, Scaglione F, Vampini C, Fagiolini A. Clinical guidance for the use of trazodone in major depressive disorder and concomitant conditions: pharmacology and clinical practice. *Riv Psichiatr.* 2019 Jul-Aug;54(4):137-149. doi: 10.1708/3202.31796. PubMed PMID: 31379379.

2: Cuomo A, Beccarini Crescenzi B, Goracci A, Bolognesi S, Giordano N, Rossi R, Facchi E, Neal SM, Fagiolini A. Drug safety evaluation of aripiprazole in bipolar disorder. *Expert Opin Drug Saf.* 2019 Jun;18(6):455-463. doi: 10.1080/14740338.2019.1617847. Epub 2019 May 17. Review. PubMed PMID: 31072228.

3: Cuomo A, Maina G, Bolognesi S, Rosso G, Beccarini Crescenzi B, Zanobini FGoracci A, Facchi E, Favaretto E, Baldini I, Santucci A, Fagiolini A. Prevalence and Correlates of Vitamin D Deficiency in a Sample of 290 Inpatients With Mental Illness. *Front Psychiatry*. 2019 Mar 29;10:167. doi: 10.3389/fpsy.2019.00167. eCollection 2019. PubMed PMID: 31001150; PubMed Central PMCID: PMC6455075.

4: Rosso G, Aragno E, Cuomo A, Fagiolini A, Di Salvo G, Maina G. Five-year follow-up of first-episode depression treated with psychodynamic psychotherapy or antidepressants. *Psychiatry Res*. 2019 May;275:27-30. doi:10.1016/j.psychres.2019.02.073. Epub 2019 Feb 28. PubMed PMID: 30878853.

5: Cuomo A, Bolognesi S, Goracci A, Ciuoli C, Beccarini Crescenzi B, Maina G, Rosso G, Facchi E, Maccora C, Giordano N, Verdino V, Fagiolini A. Feasibility, Adherence and Efficacy of Liraglutide Treatment in a Sample of Individuals With Mood Disorders and Obesity. *Front Psychiatry*. 2019 Jan 23;9:784. doi: 10.3389/fpsy.2018.00784. eCollection 2018. PubMed PMID: 30728788; PubMed Central PMCID: PMC6351474.

6: Amodeo G, Cuomo A, Bolognesi S, Goracci A, Trusso MA, Piccinni A, Neal SM, Baldini I, Federico E, Taddeucci C, Fagiolini A. Pharmacotherapeutic strategies for treating binge eating disorder. Evidence from clinical trials and implications for clinical practice. *Expert Opin Pharmacother*. 2019 Apr;20(6):679-690. doi: 10.1080/14656566.2019.1571041. Epub 2019 Jan 29. Review. PubMed PMID: 30696303.

7: Ballerio M, Politi P, Crapanzano C, Emanuele E, Cuomo A, Goracci A, Fagiolini A. Clinical effectiveness of parenteral trazodone for the management of psychomotor activation in patients with bipolar disorder. *Neuro Endocrinol Lett*. 2018 Sep;39(3):205-208. PubMed PMID: 30431739.

8: Cuomo A, Maina G, Rosso G, Beccarini Crescenzi B, Bolognesi S, Di Muro A, Giordano N, Goracci A, Neal SM, Nitti M, Pieraccini F, Fagiolini A. The Microbiome: A New Target for Research and Treatment of Schizophrenia and its Resistant Presentations? A Systematic Literature Search and Review. *Front Pharmacol*. 2018 Oct 15;9:1040. doi: 10.3389/fphar.2018.01040. eCollection 2018. PubMed PMID: 30374300; PubMed Central PMCID: PMC6196757.

9: Bauer R, Glenn T, Strejilevich S, Conell J, Alda M, Arda R, Baune BT, Berk M, Bersudsky Y, Bilderbeck A, Bocchetta A, Castro AMP, Cheung EYW, Chillotti C, Choppin S, Cuomo A, et al. Internet use by older adults with bipolar disorder: international survey results. *Int J Bipolar Disord*. 2018 Sep 4;6(1):20. doi:10.1186/s40345-018-0127-7. PubMed PMID: 30178112; PubMed Central PMCID: PMC6161969.

10: Cuomo A, Maina G, Neal SM, De Montis G, Rosso G, Scheggi S, Beccarini Crescenzi B, Bolognesi S, Goracci A, Coluccia A, Ferretti F, Fagiolini A. Using sertraline in postpartum and breastfeeding: balancing risks and benefits. *Expert Opin Drug Saf*. 2018 Jul;17(7):719-725. doi: 10.1080/14740338.2018.1491546. Epub 2018 Jul 5. Review. PubMed PMID: 29927667.