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Psychoneuroimmunoilogy in the service of personalized psychiatry

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Dysfunction of the immune system plays a key role in the pathophysiology of most major psychiatric disorders. Immune system hyperactivity has been established in major depressive, anxiety and schizophrenic disorders. The Cytokine Theory of Depression has ushered in a new era in psychiatric and psychopharmacological research. Complex interactions between the monoaminergic, glutamatergic, endocrine and immune systems are being rapidly unraveled. Growth factors measured in brain and periphery indicate potential diagnostic and predictive potential for treatment response. Taken together, this rapidly expanding body of knowledge can lead to a new typology of psychiatric disorders linking diverse biomarkers to phenomenology with the potential to improve diagnosis and treatment outcomes. In this presentation I will provide an update of new findings and present an integrative approach about the interactions of these diverse systems. I will focus on the relationship between the pro-inflammatory status in depression and its effect on the tryptophan/kynurenine pathway. I will demonstrate how specific pro-inflammatory biomarkers in blood correlate significantly with metabolic products of the tryptophan-kynurenine pathway. Treatment with escitalopram partially restores the observed abnormality and exhibits a neuroprotective effect as reflected in lowered plasma levels of quinolinic acid. Significant correlations exist between specific symptoms, notably suicidality, and quinolinate supporting the potential role of glutamatergic transmission in suicidality.

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