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Preface: Neuropsychiatry Coming of Age xiii

Vassilis E. Koliatsos

Neuropsychiatry: Definitions, Concepts, and Patient Types 213

Vassilis E. Koliatsos, Robert Wisner-Carlson, and Crystal Watkins

Neuropsychiatry is an integrative discipline defined by its history, its preferred patients, and its theoretic framework. Dealing with human behavior needs to consider the brain, but such consideration should avoid oversimplification: *neurologic understanding is not essential, necessary, or desirable in all conditions encountered in clinical psychiatry.* Neuropsychiatric theory is founded on discoveries in the areas of synaptic plasticity and cortical/limbic anatomy (bottom-up), but also evolutionary biology and anthropology (top-down). Going forward, we need to synthesize vital information, distinguish the essential from the trivial or tenuous, and remain open to dialogue with allied disciplines, our patients, and our students.

Translational Neuroscience in Autism: From Neuropathology to Transcranial Magnetic Stimulation Therapies 229

Manuel F. Casanova, Estate M. Sokhadze, Emily L. Casanova, Ioan Opris, Caio Abujadi, Marco Antonio Marcolin, and Xiaoli Li

The presence of heterotopias, increased regional density of neurons at the gray-white matter junction, and focal cortical dysplasias all suggest an abnormality of neuronal migration in autism spectrum disorder (ASD). The abnormality is borne from a dissonance in timing between radial and tangentially migrating neuroblasts to the developing cortical plate. The uncoupling of excitatory and inhibitory cortical cells disturbs the coordinated interactions of neurons within local networks, thus providing abnormal patterns of brainwave activity in the gamma bandwidth. In ASD, gamma oscillation abnormalities and autonomic markers offer measures of therapeutic progress and help in the identification of subgroups.

Neuropsychiatric Aspects of Impulse Control Disorders 249

Bruno Silva, Hugo Canas-Simião, and Andrea E. Cavanna

Impulse control disorders (ICDs) are neuropsychiatric conditions characterized by the repeated inability to resist an impulse, drive, or temptation to perform an act that is harmful to the person or others. Although classification approaches to ICDs vary both diachronically and synchronically, this group of conditions encompasses a wide range of syndromes, including pathologic gambling, kleptomania, trichotillomania, excoriation (skin picking) disorder, intermittent explosive disorder, pyromania, oppositional defiant, conduct, and antisocial personality disorders. ICDs can play a significant role as comorbidities in both neurodevelopmental (eg, attention-deficit/hyperactivity disorder, Tourette syndrome) and neurodegenerative (eg, Parkinson disease) disorders.

Neurodevelopmental Factors in Schizophrenia

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Hanna Jaaro-Peled and Akira Sawa

The onset of schizophrenia is usually in late adolescence or early adulthood. However, accumulating evidence has suggested that the disease condition is an outcome of gene–environment interactions that act in neural development during early life and adolescence. Some children who later develop schizophrenia have early developmental and educational and social challenges. Some patients with schizophrenia have an abundance of nonspecific neurologic soft signs and minor physical anomalies. Adolescence is a sensitive period of increased neuronal plasticity. It is important to consider early detection and intervention from the prodromal stage to early disease to prevent its devastating long-term consequences.

Neuropsychiatric Aspects of Epilepsy

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Benjamin Tolchin, Lawrence J. Hirsch, and William Curt LaFrance Jr

This article reviews common and clinically important neuropsychiatric aspects of epilepsy. Comorbidities are common, underdiagnosed, and powerfully impact clinical outcomes. Biological, psychological, and social factors contribute to the associations between epilepsy and neuropsychiatric disorders. Epidemiologic studies point to a bidirectional relationships between epilepsy and neuropsychiatric disorders. People with epilepsy are more likely to develop certain neuropsychiatric disorders, and those with these disorders are more likely to develop epilepsy. This relationship suggests the possibility of shared underlying pathophysiologies. We review the neuropsychiatric impact of antiseizure medications and therapeutic options for treatment. Diagnosis and treatment involve close collaboration among a multidisciplinary team.

Update on the Neuropsychiatry of Substance Use Disorders

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George Kolodner and Vassilis E. Koliatsos

This article reviews some of the recent discoveries about how neurobiological processes contribute to the understanding and treatment of substance use disorders. Particular focus is given to cannabis, opioids, and designer drugs. Important areas addressed include triggers and cravings, the central roles of dopamine and stress, and the endocannabinoid system. Clinical relevance of these findings for withdrawal management and relapse prevention is discussed. Also highlighted are issues related to the opioid epidemic and consequences both of continuing federal prohibition of cannabis as well as its state-by-state relaxation.

The Behavioral Neuroscience of Traumatic Brain Injury

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Vassilis E. Koliatsos and Vani Rao

Traumatic brain injury is a calamity of various causes, pathologies, and extremely varied and often complex clinical presentations. Because of its predilection for brain systems underlying cognitive and complex behavioral operations, it may cause chronic and severe psychiatric illness that requires expert management. This is more so for the modern epidemic of athletic and military brain injuries which are dominated by psychiatric symptoms. Past medical, including psychiatric, history, and comorbidities

are important and relevant for formulation and management. Traumatic brain injury is a model for other neuropsychiatric disorders and may serve as an incubator of new ideas for neurodegenerative disease.

Frontotemporal Dementia: Neuropathology, Genetics, Neuroimaging, and Treatments 331

Kyan Younes and Bruce L. Miller

Frontotemporal dementia (FTD) encompasses a group of clinical syndromes, including behavioral variant FTD, nonfluent variant primary progressive aphasia, semantic variant primary progressive aphasia, FTD motor neuron disease, progressive supranuclear palsy syndrome, and corticobasal syndrome. Early on in its course, FTD is commonly seen in psychiatric clinics. In this article the authors review the neuroimaging, pathology, genetics, and therapeutic interventions for FTD spectrum disorders.

Neuropsychiatric Aspects of Frontotemporal Dementia 345

Kyan Younes and Bruce L. Miller

Frontotemporal dementia (FTD) encompasses a group of clinical syndromes, including behavioral-variant FTD, nonfluent variant primary progressive aphasia, semantic variant primary progressive aphasia, FTD motor neuron disease, progressive supranuclear palsy syndrome, and corticobasal syndrome. Early on in its course, FTD is commonly seen in psychiatric clinics. We review the clinical features and diagnostic criteria in FTD spectrum disorders.

Lewy Body Degenerations as Neuropsychiatric Disorders 361

Jared T. Hinkle and Gregory M. Pontone

Parkinson disease has historically been conceptualized as a movement disorder. In recent decades, nonmotor and neuropsychiatric symptoms have become increasingly recognized as being of paramount importance for patients with Parkinson disease. Neuropsychiatric phenomena dominate the course of the other major Lewy body disease, dementia with Lewy bodies. In this review, we survey the clinical relevance of nonmotor and neuropsychiatric symptoms to the heterogeneous presentations of Lewy body disease and their significance to ongoing research in this area. We consider how the nature of Lewy body neuropathology may help explicate the basis of nonmotor and neuropsychiatric symptoms in these two disorders.

Neuropsychiatric Aspects of Alzheimer Dementia: From Mechanism to Treatment 383

Milap A. Nowrangi

Developing disease-modifying treatments for Alzheimer dementia requires innovative approaches to identify novel biological targets during the course of the disease. Treatment development for the neuropsychiatric symptoms of Alzheimer may benefit from a mechanistic approach to treatment. There has been progress in identifying mild forms of behavioral impairment along the Alzheimer spectrum that may lead to additional

insights into progression to dementia as well as the fundamental mechanisms of the symptoms. Developing therapies for complex neurobehavioral syndromes may require the translation of mechanistic insights into therapy, which may both improve the symptoms and delay progression to dementia in certain patients.

New Medications for Neuropsychiatric Disorders

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Harika M. Reddy, Joshua S. Poole, Gerald A. Maguire, and Stephen M. Stahl

This article seeks to summarize the mechanisms of action, clinical trials, and FDA approval status of several psychiatric medications that are either newly available or in the FDA approval process. This article highlights medications that demonstrate novel mechanisms of action, examines nonpsychiatric medications that are being used to augment existing psychiatric treatments, and elucidates treatments for illnesses that have not previously received FDA indications.