

**Book Reviews**

*Inflammation in psychiatry*, A. Halaris, B. E. Leonard, editors (Karger, Basel, Switzerland) 2013. 208 pages.  
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This book, a part of the series on Modern Trends in Pharmacopsychiatry, has 14 chapters contributed by different authors. In the preface, the editors have rightly emphasized the current emerging role of psychoimmunology and neuroinflammation in understanding the aetiopathogenesis of psychiatric disorders.

The first chapter explains the basic concepts of immunological basis of neuroinflammation. Neuroinflammation has been defined as immune-related processes that occur within the CNS. The Figures have, though informative and self-explanatory, not been properly placed in the text. The abbreviations used in the Figures and some of these in text have not been properly expanded. The important text has not been highlighted. The conclusion, if presented in bullet form, would have been more informative.

The second chapter, Stress and Neuroinflammation comprehensively covers the recent update especially the role of substance P, neuropeptide Y, nuclear factor, nitric oxide, and cyclo-oxygenase-2. Conclusion however, does not highlight all the important aspects discussed in text. Inclusion of Figures/Tables and highlighting the important text would have made the text easily understandable.

The chapter ‘Role of Inflammation in Depression: Implication in Phenomenology, Pathophysiology and Treatment’ is simplified and evidence-based and makes a reader easily understand the role of cytokines and anti-cytokine intervention and other immune modulators in depression. Again some of the references have been inappropriately clubbed rather than being individually explained. Conclusion is well written and relevant references have been included.

The chapter ‘Virus Infection as a Cause of Inflammation in Psychiatric Disorders’ discusses the role played by neuroinflammation in severe psychiatric disorders like affective and schizophrenia spectrum disorders. It also highlights the methodological difficulties in correctly outlining viral infection as a cause of neurological and psychiatric disorders. The important viruses mentioned are Borna Disease virus, Herpes simplex, HIV encephalitis, EB virus, but the role of hepatitis virus C and others has not been mentioned. A portion of the text on inflammation and neuroinflammation is overlapping with the fist chapter. The text could have been better arranged according to viruses or psychiatric disorders (as has been done in the next chapter) to avoid any overlapping and making the text interesting. The next chapter discusses inflammation, neurotoxins and psychiatric disorders. This chapter has been properly arranged and highlighted by explanatory Figures. Based on the theory of inflammation, the role of drugs in the treatment of psychiatric disorders could have been highlighted.

The chapter ‘Essential Fatty Acids as Potential Anti-Inflammatory Agents in the Treatment of Affective Disorders’ essentially covers the current evidence on the role of essential fatty acids available in the aetio-pathogenesis and treatment of affective disorders but has avoided highlighting the studies which had disputed their role in depression.

The chapter ‘The brain-gut axis: a Target for Treating Stress-Related Disorders’ is a new research development in studying the role of probiotics in the
treatment of psychiatric disorders, especially stress-related disorders, depression, obesity and irritable-bowel syndrome. The next chapter, ‘The Question of Pro-inflammatory Immune Activity in Schizophrenia and the Potential Importance of Anti-Inflammatory drugs’ has been excellently presented but the interplay of autoimmune disorders and psychiatric disorders has not been included. There is some overlap with a previous chapter and also a conclusion is lacking.

The chapter ‘Inflammation as the Cause of Metabolic Syndrome in Depression’ highlights the role of inflammation in the aetiology of metabolic syndrome in depression but based on immune theory, it does not highlight how the antidepressants, especially the newer ones improve depression. There should have been a corollary of text on the role of inflammation in metabolic syndrome in schizophrenia. There is overlapping in text in the chapter, ‘Glucocorticoids and Inflammation: a Double—Headed Sword in Depression’ with the previous one. The chapter ‘Co-Morbidity between Cardiovascular Pathology and Depression: Role of Inflammation’ also has overlapping with a previous chapter. It does not highlight the role of inflammation in various psychiatric disorders and the role of Selective Serotonin Reuptake Inhibitors (SSRIs) in correcting depression by correcting the inflammation.

The next chapter is well written and comprehensively describes the emerging role of inflammation in myalgic encephalitis and chronic fatigue syndrome. The following chapters, ‘Peripheral Inflammation and Cognitive Aging’ and ‘Inflammation and Suicidality’ present newer developments in psychiatry and have been excellently written. The role of toxoplasma, hepatitis C and α-interferon in increasing suicidality should have also been included.

Author index is hardly useful and subject index is not comprehensive. A list of abbreviations in the beginning of the book would have made mental health experts more comfortable in understanding the text because some of the abbreviations are not expanded. A chapter on the association of autoimmune disorders and psychiatry should have been included. These shortcomings can be improved in future editions.

Despite these shortcomings, the book is an excellent attempt to present information on the role of inflammation in psychiatry, which is usually not available to most of the mental health workers. All the chapters give a comprehensive up-to-date list of references. The book is also recommended for experts interested in planning research in this area.

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Neuronal recovery after acute cerebral injury (due to stroke, trauma, hypoxia, etc.) is a fascinating subject but our knowledge in this area is still limited. However, over the past decade there has been an enormous progress in neuroimaging and electro diagnostic medicine, which has thrown light on the scientific underpinnings of neuronal recovery. This book is an informative compilation on the same lines and is the 32nd volume of the series Frontiere of Neurology and Neuroscience. The book is divided into 16 chapters each dealing with an important facet of cerebral neuronal recovery. All the chapters are extremely informative and written in a compelling and lucid style. The Figures are very relevant and illustrative.

Post-stroke condition is the prototype to study the mechanism of neural restoration and the first five chapters of this book comprehensively outline the mechanisms of post-stroke cerebral recovery determined by utilizing sophisticated non-invasive advanced neuro-imaging techniques [functional MRI (fMRI), diffusion tensor imaging (DTI)] along with focal transcranial magnetic stimulation (TMS). The TMS is an interventional method that transiently interferes with the ongoing neuronal activity in the stimulated focal cerebral area and helps to probe the functional relevance of a change in regional activity as revealed by fMRI. The ancillary investigational tools include EEG, magneto-encephalography, transcranial direct current stimulation and so on. Through all these sophisticated techniques it has been determined that recovery after CNS damage occurs not only by functional cortical reorganization in ipsi- and contralateral hemispheres (neuroplasticity) but also by structural alterations with axonal sprouting and regeneration. Recent evidence has shown that neurogenesis also takes place in humans contributing to cerebral repair.
Chapters 6, 7 and 8 discuss the research being conducted with stem cell therapy in neuronal rejuvenation. Studies on hematopoietic, mesenchymal and embryonic-like stem cells are under way. There is a therapeutic potential for bone marrow stromal cell (BMSC) transplantation and direct intra-cerebral injection seems to be the most effective method of delivery. Although stem cell therapy could be the future for complete neuronal restoration, there is still a substantial gap in translational laboratory-to-clinic understanding of this form of therapy.

Chapter 9 describes a wide range of medications that are under investigation, aimed at enhancing neuronal recovery. Attempts to synthesize pharmaceuticals that stimulate plasticity or regeneration or else neutralize axonal growth is ongoing.

Chapter 11 presents brain-computer interface (BCI) as a useful tool for motor functional recovery. The changes in brain activity registered through EEG are fed to the computer and then in turn fed back to the subject as visual input. Thus BCI allows brain activity to facilitate a learning process that improves rehabilitation. Chapter 12 deals with the influence of ipsilateral paralesional areas and the contralateral hemisphere in the recovery of post-stroke aphasia. Based on the knowledge regarding post-stroke cortical reorganization, a new paradigm for post-stroke sensorimotor and cognitive rehabilitation can be designed. This book discusses about non-invasive repetitive TMS (rTMS) therapy and about constraint-induced movement therapy to modulate cortical excitability to facilitate rehabilitation.

Chapter 14 deals with therapeutic hypothermia on neuronal regeneration after cerebral ischaemia while chapter 15 talks about the future prospect of high voltage electric potentials to enhance brain-derived neurotrophic factors (BDNF) aimed at improving cognition and inducing tolerance to cerebral infarction.

In the last chapter, the role of the free radical scavenger, edaravone in the prevention of post-stroke disuse muscle atrophy has been described. However, the provided data are of a single study showing the benefit of edaravone. In fact, this drug needs further studies before its beneficial role in stroke can be established.

On the whole, this is a valuable book that deals with a fascinating subject little known to clinicians. This book is recommended for neurologists, neurosurgeons, physiatrists and basic neuroscientists.

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