Neural Plasticity

Special Issue on

Neural Plasticity in Obesity and Psychiatric Disorders

CALL FOR PAPERS

The global burden of obesity and psychiatric disorders imposes some of the greatest challenges to the healthcare systems of the world. These pathological conditions result from a combination of genetic and environmental factors. For instance, obesity and depression have an approximate heritability of 50% and are negatively affected by chronic stress, neuroendocrine and metabolic disorders, sedentary lifestyle, poor-quality diet, and excessive consumption of alcohol and other drugs of abuse. Interestingly, there is evidence suggesting a bidirectional negative interaction between these two pathological conditions.

Remarkably, recent evidence suggests that obesity and psychiatric disorders can reshape the brain. Whereas the hippocampus is a major brain area associated with mood and memory, the hypothalamus is the essential neuroendocrine region that controls food intake and energy expenditure. Previous research has shown that depressive behavior decreases adult hippocampal neurogenesis and that antidepressant use prevents this decrease. Also, recent evidence has shown that the adult hypothalamus can undergo neurogenesis and neurodegeneration. There are common neuroinflammatory processes and cellular mechanisms occurring within different areas of the brain during obesity and psychiatric disorders. Thus, brain plasticity changes occurring during either obesity or psychiatric conditions could potentially expand the knowledge of both fields.

Potential topics include, but are not limited to:

- Environmental factors affecting neural plasticity: impact of diet, exercise, neuroendocrine imbalance, gut microbiota, microbial infections, stress, chemical disruptors, and drugs of abuse
- Genetic variants associated with neural plasticity
- Molecular mechanisms involved in adult neurogenesis: role of inflammatory mediators, growth factors, microRNAs and other epigenetic, and cellular and/or molecular pathways
- The updating of imaging studies to assess neural plasticity
- Possible novel brain areas undergoing neural plasticity
- Preclinical models of obesity/psychiatric conditions-induced neural plasticity

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