Neurosciences and Epigenetics in Outcome Research

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The important research line regarding the outcome of various psychotherapy treatments (Outcome Research) started since the Fifties. The outcome of therapy is basically defined in terms of diminished severity of symptoms. Today the Outcome Research represents a crucial aspect both in clinical research and in the theoretical field. The advent of neuroscience has marked an important turning point also in this field of medical research. Recent advances in neuroimaging techniques allowed the scientists to identify neural correlates not only referred to mental disorders, but also to changes associated with therapeutic interventions.

In this talk, we will compare the impact of the psychotherapeutic and pharmacological intervention at neural circuits and networks level, particularly in the case of major depression. In this regard, we will discuss the results of a recent meta-analysis (Kalsi et al. 2017) based on studies focused on patients suffering from anxiety and depression disorders. A very large sample of participants (n=546) has been analysed and the neural correlates of pre- and post-psychotherapeutic intervention (psychodynamic and cognitive behavioural) and pharmacological (based on antidepressants) treatment have been compared. The researchers found, in particular, the inverse response of the right paracingulate depending on the kind of treatment. We will provide an explanation of these data in the light of the dual-process model, partially revisited.

Furthermore, we will suggest the future prominent contributes of the behavioural epigenetics in Outcome Research. Recent studies have shown that not only drugs but even different types of environmental exposures can affect neuroplasticity, modulating the synaptic connectivity. Environmental experiences seem to be examples of epigenetic factors that influence the development of mental disorders through mechanisms of silencing or activation of gene expression.

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