

Changes in neural circuitry associated with depression at pre-clinical, pre-motor and early motor phases of Parkinson's disease

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© 2016 Elsevier Ltd Although Parkinson's Disease (PD) is mostly considered a motor disorder, it can present at early stages as a non-motor pathology. Among the non-motor clinical manifestations, depression shows a high prevalence and can be one of the first clinical signs to appear, even a decade before the onset of motor symptoms. Here, we review the evidence of early dysfunction in neural circuitry associated with depression in the context of PD, focusing on pre-clinical, pre-motor and early motor phases of the disease. In the pre-clinical phase, structural and functional changes in the substantia nigra, basal ganglia and limbic structures are already observed. Some of these changes are linked to motor compensation mechanisms while others correspond to pathological processes common to PD and depression and thus could underlie the appearance of depressive symptoms during the pre-motor phase. Studies of the early motor phase (less than five years post diagnosis) reveal an association b