

The Underlying Link Between Parkinson's Disease, Alzheimer's Disease, and Major Depressive Disorder

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The modern scientific era has experienced formidable advances in the treatment of different neuropathologies. However, certain neurodegenerative diseases such as Parkinson's disease, Alzheimer's disease, and major depressive disorder still present a challenge due to their complex mechanisms. The purpose of the present proposal is to investigate the nature of these three diseases as pathological spectrums that share a single underlying basis, instead of classifying them as completely independent conditions. This rationale has five fundamental pillars: 1) The three diseases are induced by oxidative stress (Choi et al., 2006; Rawdin et al., 2013), 2) the three diseases are progressive over time (Han et al., 2018), 3) symptoms of depression have now been categorized as potential early indicators of Parkinson's disease (Gustafsson et al., 2015), 4) there are increased levels of neuromelanin (the by-product of dopamine metabolism) in both group of patients suffering from Parkinson's disease and Alzheimer's disease (Miyoshi et al., 2013), and 5) there is evidence that the oxidation of DJ-1 antioxidant proteins is present in people with Parkinson's disease and Alzheimer's disease (Choi et al., 2006). Evidence that these diseases share a common nucleus will lead to the development of promising scientific approaches to disrupt their progressive nature.