An ERcentric view of Parkinson's disease

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Parkinson's disease (PD) is the second most common neurodegenerative disease and is characterized by the selective loss of dopaminergic neurons of the substantia nigra pars compacta and the accumulation of intracellular inclusions containing ?-synuclein (?Syn). Growing evidence from studies in human PD brain, in addition to genetic and toxicological models, indicates that endoplasmic reticulum (ER) stress is a common feature of the disease and contributes to neurodegeneration. Recent reports place ER dysfunction as an early component of PD pathogenesis, and in this article we review the impact of ER stress in PD models and discuss the multiple mechanisms underlying the perturbation of secretory pathway function. Possible therapeutic strategies to mitigate ER stress in the context of PD are also discussed.