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Poster presentation



# The beginnings of clinical neurochemistry: dopamine and Parkinson's disease

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## Background

In the middle of the 20th century, chemical neurotransmission in the brain was still an issue of debate. In this context, research on Parkinson's disease played a significant role, as it lead beyond the simple identification of a neurotransmitter to the formation of an articulate clinicopathological model and a rational therapeutic approach.

## Discussion

A. Carlsson was the first to suggest a neurotransmitting role for dopamine in 1955; a few years later, his team observed the great dopamine concentrations in the basal ganglia. The clinical implications of this finding were soon realized – it was already known since the beginning of the century that the basal ganglia are involved in Parkinson's disease. The studies of O. Hornykiewicz and T. Sourkes suggested a dopamine deficiency in Parkinson's patients, and in the mid-1960's considerable evidence was gathering in favor of the existence of a nigrostriatal dopaminergic pathway, involved in the regulation of motility. The renewal of the pharmaceutical treatment of the disease followed closely: Hornykiewicz and Birkmayer (1960), and almost concurrently Sourkes and Barbeau (1962), conceived the idea of administering L-DOPA in patients with Parkinson's disease, with spectacular results. The treatment of Parkinson's disease evolved in the following years, with optimisation of administration regimens by Cotzias et al (1967), as well as with the introduction of decarboxylase inhibitors. In the mid-1960's the concept of dopamine as a neurotransmitter had reached mainstream status, and the nigrostriatal pathway had become a model for the study of central synapses.