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Autor(en) des Beitrags:
Schulte, Eva C; Altmaier, Elisabeth; Berger, Hannah S; Do, Kieu Trinh; Kastenmüller, Gabi; Wahl, Simone; Adamski, Jerzy; Peters, Annette; Krumsiek, Jan; Suhre, Karsten; Haslinger, Bernhard; Ceballos-Baumann, Andres; Gieger, Christian; Winkelmann, Juliane

Titel des Beitrags:
Alterations in Lipid and Inositol Metabolisms in Two Dopaminergic Disorders.

Abstract:
Serum metabolite profiling can be used to identify pathways involved in the pathogenesis of and potential biomarkers for a given disease. Both restless legs syndrome (RLS) and Parkinson’s disease (PD) represent movement disorders for which currently no blood-based biomarkers are available and whose pathogenesis has not been uncovered conclusively. We performed unbiased serum metabolite profiling in search of signature metabolic changes for both diseases. 456 metabolites were quantified in serum samples of 1272 general population controls belonging to the KORA cohort, 82 PD cases and 95 RLS cases by liquid-phase chromatography and gas chromatography separation coupled with tandem mass spectrometry. Genetically determined metabotypes were calculated using genome-wide genotyping data for the 1272 general population controls. After stringent quality control, we identified decreased levels of long-chain (polyunsaturated) fatty acids of individuals with PD compared to both RLS (PD vs. RLS: p = 0.0001 to 5.80x10^-9) and general population controls (PD vs. KORA: p = 6.09x10^-5 to 3.45x10^-32). In RLS, inositol metabolites were increased specifically (RLS vs. KORA: p =
The impact of dopaminergic drugs was reflected in changes in the phenylalanine/tyrosine/dopamine metabolism observed in both individuals with RLS and PD. A first discovery approach using serum metabolite profiling in two dopamine-related movement disorders compared to a large general population sample identified significant alterations in the polyunsaturated fatty acid metabolism in PD and implicated the inositol metabolism in RLS. These results provide a starting point for further studies investigating new perspectives on factors involved in the pathogenesis of the two diseases as well as possible points of therapeutic intervention.