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## Should patients with atypical presentation of parkinsonism be tested for lysosomal storage diseases?

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*Introduction:* The correlation between lysosomal storage diseases (LSDs) and neurodegenerative disorders has become increasingly evident, in particular the association between mutations of GBA gene, which encodes the lysosomal β-glucosidase, and Parkinson's disease (PD) has been reported.

*Objective:* To present the case of a patient with parkinsonism enrolled in a study (acronym Lysolate). This research project is funded by Tuscany Region.

*Methods:* The Lysolate study investigates the presence of late onset LSDs in patients with undefined neurodegenerative symptoms with or without multiorgan involvement. Patients enrolled in the study were analysed using a Next Generation Sequencing (NGS) panel including more than 65 genes involved in LSDs.

*Results:* We present the case of a woman who suffered from mood disorder characterized by phobias and anxiety from a young age, whose symptoms worsened at the age of 70 to include obsessive-compulsive behaviours. She developed clear extrapyramidal signs, hallucinations, seizures and a rapid and progressive cognitive decline, which leaded to muteness, a bedridden condition and finally to death at the age of 80. She also suffered from high blood pressure, diabetes, thrombocytopenia, glaucoma, cataract, right retinal melanoma and Horton's arteritis. Brain MRI showed cerebral atrophy with enlargement of cerebrospinal fluid spaces and white matter alterations. SPET brain DaTscan highlighted a severe degeneration of the nigrostriatal system. The NGS analysis showed that she was heterozygous for the known pathogenic c.662A>G p.(Tyr221Cys) variant in the CLN6 gene, previously associated with Neuronal ceroid lipofuscinosis [1].

*Conclusions:* Clinical data are consistent with a possible diagnosis of ceroid lipofuscinoses 6 related to mutations in the CLN6 gene. Unfortunately, the mis-identification of the second disease causing variant in the CLN6 gene didn't allow a definitive diagnosis. However, these data confirm that patients with an atypical presentation of parkinsonism should undergo a detailed genetic analysis, including screening for genes causing LSDs.

**References:**

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