Association of GST M1 null polymorphism with Parkinson's disease in a Chilean population with a strong Amerindian genetic component

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We have studied the association of a null mutation of Glutathione Transferase M1 (GST M1*0/0) with Parkinson's disease (MIM 168600) in a Chilean population with a strong Amerindian genetic component. We determined the genotype in 349 patients with idiopathic Parkinson's disease (174 female and 175 male; 66.84 ± 10.7 years of age), and compared that to 611 controls (457 female and 254 male; 62 ± 13.4 years of age). A significant association of the null mutation in GST M1 with Parkinson's disease was found ($p = 0.021$), and the association was strongest in the earlier age range. An association of GSTM1*0/0 with Parkinson's disease supports the hypothesis that Glutathione Transferase M1 plays a role in protecting astrocytes against toxic dopamine oxidative metabolism, and most likely by preventing toxic one-electron reduction of aminochrome.