MECP2 Duplication: genetic and clinical study in Spanish patients

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Objective: The MECP2 duplication syndrome (OMIM 300260) is a neurodevelopmental disorder X- linked characterized by severe to profound intellectual disability, early infantile hypotonia, autistic traits, seizures and recurrent infections. It usually affects boys, but also there are girls affected. The duplication origin could have a maternal or *de novo* inheritance. It has been reported about 120 cases all over the world, without a known incidence.

Material and Method: The aim of the study is to characterize a Spanish cohort with *MECP2* duplication syndrome to improve our knowledge of the disease and perform a genotype-phenotype correlation.

Results: The cohort consists in 15 patients of both sexes diagnosed in different Spanish hospitals. The duplications were detected by MLPA and / or CGH-array. Our workflow was: 1) Check the duplication by qPCR-doses, and study XCI; 2) If FISH confirms tandem duplication, we detect the breakpoints through PCR-long and Sanger sequencing; 3) Study the expression of the two MeCP2 isoforms by RT-qPCR; 4) Correlate the clinical presentation with the *MECP2* duplicated region.

Conclusions: In this collaborative study has been characterized a heterogeneous cohort formed by patients of both sexes, with different phenotypes (Rett-like and duplication patients) and different inheritance of the mutation (maternal or *de novo*). This variety has allowed us to provide the necessary information to create a genotype-phenotype correlation.
We suppose MECP2 duplication syndrome is an underdiagnosed disease that needs further characterization studies in order to give a better genetic and clinical diagnosis.

Bibliography:

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