Diagnosis and follow-up of lysosomal storage disorders in Romanian patients

Cristina Drugan, MD, PhD
Department of Medical Biochemistry
University of Medicine and Pharmacy, Cluj-Napoca, Romania

We report the experience of the Romanian laboratory for the diagnosis of lysosomal storage disorders. 320 suspects originating from all regions of our country were referred to our laboratory. Lysosomal enzyme assays indicated specific deficiencies in 110 patients (34% of the investigated suspects).

Gaucher disease was the most frequent in our population, as it was confirmed in 65 patients, belonging to 56 unrelated families. Most of them had type 1 (non-neuronopathic) disease, but type 3 (chronic neuronopathic) was also identified in 2 patients. Other less prevalent sphingolipidoses were represented by GM_1 gangliosidosis (14 patients), Fabry disease (12 patients), GM_2 gangliosidosis (one patient) and metachromatic leukodystrophy (one patient). Mucopolysaccharidoses and mucolipidoses were identified in 15 patients. We also identified one patient with late-onset glycogenosis type II and one patient with alpha-mannosidosis.

Mutation analysis in the acid beta-glucocerebrosidase gene was performed in 64 patients of Caucasian, non-Jewish ethnicity. Our results indicate a high prevalence of the N370S allele (53.9%), followed by the mutations L444P (16.4%), recNci I (3.1%), R463Q (3.1%), R463C (1.6%) and recA456P (0.8%). Sporadic mutations accounted for 21.1% of the disease producing alleles. Genotype-phenotype correlations were similar to those reported for other Caucasian populations, but also indicated specific characteristics.

Mutation analysis in 6 Fabry disease patients allowed the identification of 2 novel missense substitutions (Leu180Trp, Trp81Arg) and of one novel frameshift deletion (c.548delG).

Lysosomal storage disorders may represent an important important pathology in our population. Specific diagnosis and follow-up is the key step in the accurate management of these patients.

Keywords: Romanian population, Gaucher disease, Fabry disease, mutation analysis