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PORTUGUESE CASUISTIC OF MUCOPOLYSACCHARIDOSES WITH CARDIAC MANIFESTATIONS

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Background: Mucopolysaccharidoses (MPS) are a group of lysosomal storage diseases (LSD) caused by deficiency of enzymes required for the stepwise breakdown of glycosaminoglycans (GAGs). Deficiency in each of these enzymes originates GAG accumulation in the lysosome in various organs, leading to cellular dysfunction and clinical abnormalities.

The phenotype in these disorders covers a broad spectrum classified from mild to severe. Generally the severity depends upon the residual enzyme activity, which usually is related to the genotype of the affected individuals. Seven main forms and several subtypes can be distinguished in MPS disorders. These LSD are rare with an estimated overall incidence of approximately 1 in 20.000 live births. All MPS have an autosomal recessive transmission mode, with the exception of MPSII (X-linked). Cardiac involvement has been reported in all MPS, especially in MPS I, MPS II, MPS IVA and MPS VI, since GAGs are a relevant part of the histopathological structure of the heart. Regurgitation, stenosis, cardiac hypertrophy and valve morphologic changes are the most documented abnormalities. **Objective**: A retrospective analysis of patients with MPS I, MPS II, MPS IVA and MPS VI, diagnosed in the Biochemical Genetics Laboratory/Centro de Genética Médica Doutor Jacinto Magalhães since 1984, will be presented regarding biochemical and molecular characteristics.

Methods: Biochemical evaluation of these patients includes determination of urinary GAG concentration and fractionation by electrophoresis and subsequent enzyme activity determination, usually in peripheral blood leukocytes and/or plasma. Mutation analysis of the involved gene was also performed.

Results: A total of 112 patients were included in this study: 35 patients with MPS I, 33 with MPS II, 17 with MPS IVA and 23 with MPS VI, representing these subtypes 70 % of all MPS diagnosed in our laboratory.

Conclusions: This casuistic analysis may be considered representative of the MPS spectrum in Portugal, since our centre is the Portuguese reference Laboratory for LSD and therefore most patients are referred to us.

Early diagnosis of MPSs, before forthcoming of irreversible and devastating lesions, may be particularly relevant, since it may minimize the risk of deaths associated with heart complications – enzyme replacement therapy is available for most forms, which will improve the quality of life.

Although most of the clinical requests of MPS patients studied in our centre have only referred sparse cardiac clinical information, the authors highlight the importance that a more detailed information regarding cardiac involvement may have in the future, so that a good correlation between clinical findings and mutations associated with these pathologies may be established.