Ehlers-Danlos Syndrome, Progeroid Type, 1

Alternative Names
Proteodermatan Sulfate, Defective Biosynthesis of
PDS, Defective Biosynthesis of
Dermatan Sulfate Proteoglycan
Xylosylprotein 4-Beta-Galactosyltransferase Deficiency
XGPT Deficiency
Galactosyltransferase I Deficiency

Record Category
Disease phenotype

WHO-ICD
Congenital malformations, deformations and chromosomal abnormalities > Congenital malformations and deformations of the musculoskeletal system

Incidence per 100,000 Live Births
0-1

OMIM Number
130070

Mode of Inheritance
Autosomal recessive

Gene Map Locus
5q35.3

Description
Ehlers Danlos syndrome is a group of heritable disorders of the connective tissue characterized by hyperextensible skin, joint hypermobility, and abnormalities of the internal organs. Most of these abnormalities result from defects in the structure or function of the collagen protein. Various forms of EDS are known. The progeroid form is a relatively rare subtype of EDS. This form is principally characterized by a progeroid facies, multiple nevi, mild mental retardation, skin hyperextensibility, bruisability, moderate skin fragility, and joint hypermobility noticed principally in the digits.

Molecular Genetics
Mutations in the B4GALT7 (Xylosylprotein 4-Beta-Galactosyltransferase, Polypeptide 7) gene have been shown to be responsible for the progeroid form of EDS. This gene codes for a membrane bound glycoprotein, galactosyltransferase-I, which plays a major role in the formation of proteoglycans. Since proteoglycans form an essential part of the extracellular matrix, and play major roles in several developmental and metabolic processes, it is easy to see how defects in its synthesis could lead to defects in the musculoskeletal system.

Epidemiology in the Arab World
Qatar
Faiyaz-Ul-Haque (2004) described two patients in an extended Arab family with the Progeroid form of EDS. The proband was a 2-year old girl, born to normal consanguineous parents. At birth, she was noted to have unusual facial features. Her developmental milestones were delayed. Upon examination, her height, weight, and head circumference, all were below the 3rd centile. Facial features included a tiny face with frontal bossing, loose facial skin, sparse scalp hair, prominent eyes with antimongoloid slanting of palpebral fissures, midface hypoplasia, low-set ears, small mouth, and defective enamel. She had long fingers and toes with lax interphalangeal joints. She had an interrupted single transverse palmar crease. Deep tendon reflexes were sluggish. X-ray showed bilateral proximal radioulnar synostosis and bowing of the shafts of the radius and ulna, short clavicles with broad medial ends, anterior splaying of ribs, abnormal appearance of distal metaphyses of the humeri and ulna, cone shaped appearance of distal phalanx of first toe, and diffuse osteopenia. Her paternal uncle, also born to consanguineous parents, was 33-years old at the time of examination. His developmental, clinical, and radiological features were similar to the proband. In addition, he also showed bilateral equinovarus deformities with many atrophic scars on the sides of his feet and back of his legs and hips. Parents of both patients were normal. Faiyaz-Ul-Haque (2004) identified a novel homozygous mutation in

the B4GALT7 gene that caused a Arg270Cys (p.R270C) change in the protein in both patients.

References

Faiyaz-Ul-Haque M, Zaidi SH, Al-Ali M, Al-Mureikhi MS, Kennedy S, Al-Thani G, Tsui LC, Teebi AS. A novel missense mutation in the galactosyltransferase-I (B4GALT7) gene in a family exhibiting facioskeletal anomalies and Ehlers-Danlos syndrome resembling the progeroid type. Am J Med Genet A. 2004; 128A(1):39-45. PMID: 15211654

Related CTGA Records

Xylosylprotein 4-Beta-Galactosyltransferase, Polypeptide 7

External Links

http://www.healthlinkbc.ca/kbase/nord/nord240.htm

http://www.rarediseases.org/search/rdbdetail_abstract.html?disname=Ehlers%20Danlos%20Syndrome

Contributors

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