Caffey Disease

Alternative Names
Infantile Cortical Hyperostosis
Prenatal Cortical Hyperostosis, Lethal

WHO International Classification of Diseases
Congenital malformations, deformations and chromosomal abnormalities

OMIM Number
114000

Mode of Inheritance
Autosomal dominant

Gene Map Locus
17q21.31-q22

Description
Infantile cortical hyperostosis, Caffey’s disease, is a self-limited disorder that affects infants before 6 months of age and disappearing during childhood. It causes bone changes, soft tissue swelling, and irritability. The typical radiological feature is a marked periosteal new bone formation surrounding the diaphysis of long bones. The bony changes usually resolve completely but sometimes, when paired bones such as the tibia and fibula or radius and ulna, have been affected, a long-term complication may be that of cross-fusion. Similar fusions may occur when adjacent ribs have been involved and may result in a progressive thoracic scoliosis with respiratory compromise. Facial and mandibular asymmetry may be a long-term consequence. It is estimated that three of every 1000 infants younger than six months of age are affected.

Molecular Genetics
Caffey disease can be inherited in an autosomal dominant manner. Genome-wide mapping of a large family with Caffey disease revealed linkage to chromosome 17q21. Fine mapping reduced the linked region to a 2.3-Mb interval between markers D17S1868 and D17S1877. The gene that was identified is named Collagen, Type I, Alpha-1 (COL1A1) and it produces the main protein of bones, skin, ligaments, tendons and most other connective tissues. It was found that all affected individuals were heterozygous for a single mutation, a substitution of Arg by Cys at position 836 (R836C), within the helical domain of the alpha-1 chain of type I collagen. The mechanism that makes this mutation causing hyperostosis is not clear yet.

Epidemiology in the Arab World

Saudi Arabia
Lardhi (1998) examined a boy suffering from Caffey’s disease. The boy showed the symptoms of Caffey’s disease in the age of 7 weeks after receiving his first DPT (Diphtheria, Pertussis, and Tetanus) shot and the second Hepatitis B vaccine. He displayed fever, irritability, and tender swelling of soft tissues with cortical hyperostosis of underlying bones. The conditions that mimic Caffey’s disease were ruled out by clinical, laboratory, and radiographic findings. In addition, the self-limiting nature of the disease in the boy when he was 15 months confirmed the diagnosis of Caffey’s disease. There was no family history of Caffey’s disease. Lardhi (1998) attributed the development of Caffey’s disease in the boy following a routine vaccination to a coincidence.

References

Contributors
Ghazi O. Tadmouri: 30.5.2006
Abeer Fareed: 27.5.2006

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