



McCune-Albright Syndrome

Alternative Names

MAS
Albright Syndrome
Polyostotic Fibrous Dysplasia
PFD
POFD

WHO International Classification of Diseases

Congenital malformations, deformations and chromosomal abnormalities

OMIM Number

174800

Mode of Inheritance

Somatic mosaicism

Gene Map Locus

20q13.2

Description

McCune Albright syndrome is a rare, sporadically occurring genetic disorder, characterized by the clinical triad of polyostotic fibrous dysplasia of bone (FD), café-au-lait skin spots, and precocious puberty (PP). PP, the most characteristic feature of this disease, is far more common in girls than in boys, and is due to gonadotropin independent autonomous ovarian or testicular function. Other hyperfunctioning endocrinopathies, such as hyperthyroidism, growth hormone excess, Cushing's syndrome, hypercortisolism, pituitary gigantism, and acromegaly are also common. Fibrous dysplasia most commonly affects the long bones, ribs and skulls, leading to fractures and deformities. In the skull, the dysplasia can lead to blindness and deafness due to impingement on nerves. Non-endocrine abnormalities such as hypophosphatemia, chronic liver disease, tachycardia, and rarely, sudden death from cardiac arrhythmias may also occur.

Specific treatment for the McCune Albright syndrome is not available. Aromatase inhibitors, like testolactone are prescribed for PP, to slow down the estrogen hypersecretion. Diphosphonates are used in case of evolutive FD. Adrenal abnormalities may be treated by surgery involving removal of the adrenal glands.

Molecular Genetics

McCune Albright syndrome is the result of a postzygotic somatic mutation in the GNAS complex locus. This locus, located on chromosome 20, codes for multiple proteins, one of which is the Gs-alpha, the alpha subunit of the heterotrimeric stimulatory G protein. A specific mutation, commonly a substitution of histidine or cysteine for arginine at amino acid 201 in the Gs-alpha causes constitutive activation of the protein, even in the absence of hormonal stimulation, leading to increased cAMP levels and mitogenesis.

Epidemiology in the Arab World

Tunisia

Halioui-Louhaichi et al. (2005) presented a case of McCune-Albright syndrome revealed by a Cushing's syndrome treated by metyrapone. After a 4-year follow up, results were good and Halioui-Louhaichi et al. (2005) recommended the use of metyrapone, for some patients, in McCune-Albright syndrome with Cushing's syndrome before chirurgical treatment.

United Arab Emirates

Muralikuttan (1996) described a nine year old girl from the United Arab Emirates with McCune Albright Syndrome. The patient presented with recurrent pathological fractures of the femur.



References

Halioui-Louhaichi S, Azzabi O, Nefzi L, Ben Hariz M, Ben Mrad N, Ben Ammar B, Maherzi A. [Treatment with metyrapone of Cushing's syndrome revealing McCune-Albright syndrome] Arch Pediatr. 2005; 12(7):1120-3.

Muralikuttan KP. Polyostotic fibrous dysplasia with pseudo-precocious puberty and pathological subtrochanteric fracture of femur. Saudi Med J. 1996; 2:264-7.

Contributors

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