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My46 Trait Profile

CDKN2A-related malignant melanoma syndrome

Other Names: Familial atypical multiple mole melanoma (FAMMM) syndrome, Familial atypical multiple mole melanoma-pancreatic carcinoma (FAMMMPC), Dysplastic Nevus Syndrome, Hereditary Melanoma

CDKN2A-related malignant melanoma syndrome is a cancer syndrome where individuals have an inherited tendency to develop melanoma. It is caused by mutations in the CDKN2A gene.

Characteristics of CDKN2A-related malignant melanoma syndrome

Most cancer occurs as a result of normal aging, lifestyle, and exposures. However, approximately 5-10% of melanoma is caused by an inherited risk factor (genetic change or mutation) that increases the chances of developing melanoma and possibly some other cancers. Melanoma is the most serious form of skin cancer. The majority of melanomas are due to ultraviolet (UV) radiation (e.g. sun exposure, tanning beds). Individuals with CDK2NA-related malignant melanoma syndrome have an increased risk of developing multiple melanomas. The exact risk for melanomas depends on various influences including skin type, sun exposure (length of time, geographical region, etc.), and other genetic factors. The average age of melanoma diagnosis for someone with a CDKN2A mutation is the mid-30s. In comparison, the average age at diagnosis in the general population is 60 years. Certain families with a CDKN2A mutation may also be at risk for pancreatic cancer. Risks for other types of cancer have been reported in some families; however, these risks have not been well defined.

Diagnosis/Testing

The genetics of hereditary melanoma is an active area of research and much remains to be discovered. It is estimated that only 20-40% of hereditary melanomas are due to mutations in the CDKN2A gene. Thus, most individuals with a personal or family history of melanoma do not have an identifiable mutation in the CDKN2A gene. However, they may be given a clinical diagnosis of hereditary melanoma based on a strong personal and family history of melanoma.

Management/Surveillance

The goal of appropriate management and surveillance is to reduce the risk for developing melanoma, and detect them at the earliest and most treatable stage. The largest risk factor for melanoma is UV radiation. Therefore, individuals with a hereditary risk for melanoma should limit their exposure to sunlight and other sources of UV radiation. The CDC recommends the following to reduce the risk for all types of skin cancer: seek shade during midday hours; wear clothing to protect exposed skin; wear a hat with a wide brim to shade the face, head, ears, and neck; wear sunglasses that block both UVA and UVB rays; use sunscreen with SPF15 or higher, and avoid indoor tanning.

Individuals with a clinical diagnosis of hereditary melanoma or with a CDKN2A mutation should have regular skin examinations with a health professional trained to identify early stage melanoma. In addition, individuals with this syndrome should also be taught how to perform their own skin examination and repeat every month. Any changes should be promptly reported to their healthcare provider and all moles or birthmarks (nevi) should be examined for features of melanoma or signs of abnormal growth of cells (dysplasia).

Currently, there are no proven effective screening methods for the detection of early-stage pancreatic cancer. A referral to a gastroenterologist to discuss current screening protocols may be considered, especially for individuals who have a CDKN2A mutation and a family history of pancreatic cancer.

Mode of inheritance

CDKN2A-related malignant melanoma syndrome is inherited in an autosomal dominant pattern. This means inheriting one CDKN2A gene mutation is enough for an individual to be at increased risk for developing melanoma and possibly other associated cancers.

Risk to family members

Each child or sibling of an individual with CDKN2A-related malignant melanoma syndrome has a 50% chance of inheriting the CDKN2A gene mutation.

Special considerations

Individuals who have a family history of melanoma and test negative for a familial CDKN2A mutation may still be at an increased risk for developing melanomas. Therefore, they should reduce their exposure to sunlight and have regular skin examinations.

Resources

Center for Disease Control and Prevention: Skin Cancer
http://www.cdc.gov/cancer/skin/
Melanoma Research Foundation
http://www.melanoma.org

References

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