CLINICAL VIGNETTE

A Male Patient with BRCA2 Positivity

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A 42-year-old male presents for his annual wellness visit. He is in good health, with no significant prior medical history and is taking no prescription medications. His sister was recently diagnosed with breast cancer at age 47. Because his mother also had breast cancer, his sister was tested and found to be a carrier of the *BRCA2* gene. Otherwise, his family history is also significant for pancreatic cancer in his maternal grandfather and colon cancer in his maternal grandmother.

The patient was also tested for the *BRCA2* mutation and found to be positive. He inquires about the impact this mutation will have on his overall health and what type of screening tests he should undergo at this point.

An asymptomatic male with *BRCA2* mutation positivity has increased risk of breast and prostate cancer. Additionally, his family history of pancreatic cancer in the setting of *BRCA* positivity means that the patient also has an increased risk of pancreas cancer.[1] Increased incidence of melanoma, colorectal cancer, stomach and biliary cancers has also been reported, but the associations have yet to be replicated. Thus, the efficacy of screening (or accelerated screening) for these tumors is not yet known.

The prostate cancer risk in a male with *BRCA2* positivity has been reported to be as high at 33% by the age of 65.[2] Studies have also reported more aggressive prostate cancer in *BRCA2* carriers than the general population.[3] Thus, it has been recommended that prostate cancer screening with serum prostate specific antigen, PSA tests should begin at age 40 and continue annually.[4]

Breast cancer risk is also increased in males who carry either the *BRCA1* or *BRCA2* gene mutation. There is a lifetime risk of 1% among those with the BRCA1 mutation and a 6% risk among those with the *BRCA2* mutation. Therefore, breast cancer surveillance should be performed, with monthly self-exams and annual clinical exams starting at age 35. The utility of annual screening mammogram or ultrasound imaging in this population has not been shown among men with normal clinical exams.[5]

Regarding pancreatic cancer surveillance, the recommendation is to follow the International Cancer of the Pancreas Screening Consortium guidelines.[6] These consider both family history as well as known genetic syndromes. When screening is appropriate, annual endoscopic ultrasound and/or magnetic resonance cholangiopancreatography (MRCP) is recommended. For this recommendation, patients need to have a first degree relative with pancreatic cancer, in addition to *BRCA* positivity, to warrant testing.

Lastly, colorectal cancer screening should follow the same guidelines as those of the general population, taking into account family history. Melanoma screening with annual skin surveys is generally recommended, despite the lack of definitive evidence associating *BRCA* and melanoma.

This case presents a number of questions regarding how to manage a patient with a known familial genetic mutation syndrome. As genetic testing becomes more commonplace both in the traditional clinical and the commercial arenas, primary care physicians will frequently be the first point of contact for patients with newly diagnosed genetic syndromes. With the development of new tests and recommendations, it is important that primary physicians maintain current knowledge of this field.

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