

Manage Costs and Reduce Patient Harm With Consistent BRCA Testing

Adhering to the National Comprehensive Cancer Network guidelines regarding the testing of BRCA mutations can reduce cancer risk and improve survival rates. In addition, payer organizations can better regulate the costs of these expensive genetic tests.

By Dr. Bob Thiessen

All cancers develop because of a mutation in a gene or multiple genes. However, most of these mutations are acquired during life and are not inherited from a parent. A few gene mutations associated with the development of certain cancers are actually inherited and are considered true hereditary cancers.

Inherited cancer-related mutations in two related genes, BRCA1 and BRCA2, can lead to a decrease in the ability to repair DNA damage and thereby can allow the development of cancer in many different sites.

A mutation in a BRCA gene is a significant risk factor for the development of breast and ovarian cancer. In comparison to the total population of patients with breast cancer, those with BRCA mutations tend to develop breast cancer much earlier in life.

Women with a BRCA mutation, particularly BRCA1, have a 20% risk of developing breast cancer before the age of 40 and a 50% risk by the age of 50. Pooled data from a large number of studies indicate that the risk of breast cancer by age 70 is 65% for BRCA1 and 43% for BRCA2.

For ovarian cancer, various studies place the risk by age 70 at 39% for BRCA1 and 11-22% for BRCA2. In addition to breast and ovarian cancer BRCA1 is associated with an increased risk of pancreatic, uterine, prostate, melanoma, colon, cervical and occult primary cancers. BRCA2 is associated with an increased risk of cancers of the male breast, stomach and pancreas.

Given the significant risks associated with the presence of a BRCA mutation, it would be ideal if everyone were tested for this mutation. However, this is impossible given the significant expense of the testing and other factors, such as the existence of many mutations of these genes that are not significant. Widespread screening could lead to unnecessary concern and over-treatment. Therefore, it is important to determine populations in which the risk of the presence of these mutations is high and to offer genetic testing to those populations.

The affected genes are not on the sex chromosome so they can be passed on to an individual through either his/her mother or father. While the presence of a mutation in a BRCA gene is associated with an increased risk of breast or ovarian cancer, these mutations only occur in about 0.1% of the general population. Those of Ashkenazi Jewish (Eastern European) descent have a higher incidence of approximately 2%.

BRCA mutations do not account for all of the increased risk in women with a family history of breast or ovarian cancer. It has been estimated that about 20 to 30% of women with breast cancer have at least one relative with the disease. However, only 5-10% have true “hereditary cancers,” most of which are associated with BRCA mutations.

In order to determine who should be tested for BRCA mutations, various expert groups have analyzed factors that are likely to predict the presence of a BRCA mutation in a particular family. One of those guidelines is that of the National Comprehensive Cancer Network (NCCN), which has established the following as testing criteria for BRCA analysis:

- Individual from a family with a known BRCA1/BRCA2 mutation
- Personal history of breast cancer plus one or more of the following:
 - Diagnosed at or below age 45.
 - Diagnosed at or below age 50 with one or more close blood relatives with breast cancer at or below age 50 and/or one or more close blood relatives with epithelial ovarian/fallopian tube/primary peritoneal cancer at any age. (Close relatives include first, second and third degree relatives.)
 - Two breast primaries when first breast cancer diagnosis occurred prior to age 50.
 - Diagnosed at any age, with two or more close blood relatives with breast and/or epithelial ovarian/fallopian tube/primary peritoneal cancer at any age.
 - Close male blood relative with breast cancer.

- Personal history of epithelial ovarian/fallopian tube/primary peritoneal cancer.
- For an individual of ethnicity associated with higher mutation frequency (for example, Ashkenazi Jewish), no additional family history is needed.
- Personal history of epithelial ovarian/fallopian tube/primary peritoneal cancer
- Personal history of male breast cancer
- Family History only:
 - First-or second degree blood relative meeting any of the above criteria
 - Third-degree blood relative with two or more blood relatives with breast and/or ovarian cancer (at least one close blood relative with breast cancer at or before age 50).

The NCCN also notes that individuals with early breast cancer with limited family history (fewer than two first /second degree relatives surviving beyond 45) and women diagnosed with triple negative breast cancer at or before age 40 may also be appropriate for testing given evidence that suggests an increased incidence of BRCA mutations in those populations.

Many women with breast cancer or a family history of breast cancer understandably wish to do everything possible to assess and lower their risk of breast or ovarian cancer. However, testing all these individuals would be prohibitively expensive and it is not reasonable to expect payers (either government or private) to bear such a burden. Adherence to the NCCN guidelines for the financial coverage of such genetic testing is reasonable.

An additional important consideration is the issue of appropriate genetic counseling. Psychological and physical harm can occur if patients are tested for gene mutations such as BRCA without having access to appropriate pre- and post-testing counseling.

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Streamlining Sleep Apnea Diagnoses

Rather than performing multiple, separate diagnostic and therapeutic tests for sleep apnea, doctors are now combining the two into a single study.

By Dr. Stephen Baez

Doctors perform sleep studies or polysomnography (PSG) to diagnose sleep-related illness or symptoms. Traditionally, patients have a diagnostic study performed for an entire night to diagnose obstructive sleep apnea (OSA). Once the doctor confirms OSA, he sets up a separate therapeutic study. During this second study the doctor adjusts (or titrates) continuous or bilevel positive airway pressure (CPAP or BiPAP) to levels that eliminate or significantly reduce the number of respiratory abnormalities (apneas and hypopneas).

Doctors perform therapeutic PSG with CPAP titration if patients have a diagnostic study demonstrating an apnea-hypopnea index (AHI). They may also perform it if the patient has a respiratory disturbance index (RDI) of at least 20 events per hour regardless of symptoms or an AHI/RDI of 10 events per hour associated with excessive daytime somnolence (EDS).

To reduce costs and improve efficiency many centers now combine the diagnostic and therapeutic studies into a single night, called a split-night study. Research by Yamashiro and Kryger, as well as Rodway and Sanders have demonstrated the effectiveness of this strategy especially in patients with significant elevations

in AHI/RDI. Split-night studies are now incorporated into the guidelines for treatment of OSA published by the American College of Chest Physicians (ACCP).

Split-night polysomnography (PSG) divides the patients testing into two phases in one night. During the first part of the night, sleep specialists diagnose obstructive sleep apnea (OSA) and during the second half determine the appropriate level of positive airway pressure (CPAP or BiPAP). Medical necessity guidelines for PSG must meet two conditions for healthcare plan payments. The patient must show a respiratory disturbance index (RDI) greater than 40 during the first two hours of testing or a RDI of 20-40 if associated with prolonged events or significant desaturations. Split-night testing has shown to be less dependable in patients with AHI/RDI measurements of less than 20 events per hour. Some doctors have been successful utilizing a split-night strategy in patients with AHI/RDI as low as 10 events per hour if associated with EDS, impaired cognition, mood disorders, or documented hypertension, heart disease or a history of stroke.

There is good evidence that split-night studies can be used under these guidelines. The challenge is that the patient must fall asleep promptly and demonstrate an elevated RDI early in the evening. Only about 25-30 percent of patients have successful

split-night studies. The patient must have at least two hours of sleep documented in the diagnostic phase of the study with the documented increase in AHI/RDI. At least three hours of time is necessary for the therapeutic phase.

If the RDI is elevated early in the sleep cycle, then the patient is awakened. The specialist places a pre-fitted CPAP mask on the patient and then the patient resumes sleep for another three hours as the pressure is titrated to eliminate the respiratory events. That is, the first part of the split study is diagnostic, and the second is therapeutic.

When a split-night study cannot be accomplished, then a therapeutic titration study is indicated. There is no specific timeframe for the performance of a titration (therapeutic) study after a diagnostic study. It should be done as soon as is practical.

Requesting a split-night study is a very cost effective strategy. If 100 percent of the studies in a practice or sleep lab were done by means of separate diagnostic and therapeutic studies on two separate nights this would indicate that the recent recommen-

dations regarding the effectiveness of split-night studies were overlooked. Seventy to 75 percent of studies may require two separate nights.

Including a specific statement in the patient's file about why a split-night study could not be accomplished helps to indicate the necessity for a second study.

References:

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Little Evidence Vision Therapy Works for Kids

Vision therapy is an expensive alternative therapeutic specialization that uses eye exercises to improve and maintain good visual function thought to help struggling children learn better. However, doubts, bolstered by the American Academy of Ophthalmology, that vision therapy is an effective treatment have risen.

Children's eyes are their windows on learning. When parents see their children struggling to learn in school they rightly seek out answers. They may stumble across something called vision therapy. Although around since the Middle Ages, today vision therapy has evolved into an alternative therapeutic specialization using eye exercises designed to improve or maintain good visual function, often administered in an optometrist's office at the cost of several thousand dollars for a complete treatment course.

"The truth is, there's no clinical evidence showing that vision therapy works," said Dr. Skip Freedman, Executive Medical Director for AllMed Healthcare Management. "Mostly the evidence is anecdotal, and studies supporting vision therapy tend to lack the scientific rigor necessary for clinically-based medical practice."

Yet enthusiastic practitioners, including optometrists, often may make exaggerated claims and even suggest that vision therapy can remedy learning disabilities, including dyslexia, reading disorders and attention deficit disorder. Parents desperate to help their children succeed in school are often encouraged by enthusiastic practitioners with anecdotal evidence that promises similar results for their child. Despite such hearsay and enthusiasm, vi-

sion therapy unfortunately doesn't bear up under the scrutiny of evidence-based medicine.

There is no doubt that the learning problems children exhibit are real and deserve some form of therapy. Still, numerous studies show no connection between visual perception and reading disability. "Parents should understand that their children may have language and cognitive issues involving brain neurology, not eye problems," said Freedman.

The American Academy of Ophthalmology agrees. A policy statement by the academy advises against using treatment approaches that "lack objective, scientifically established efficacy." It also notes that there are no known visual causes for learning disabilities and no known visual treatments. Instead of vision therapy, the academy advises parents with children who struggle educationally to seek out appropriate educational diagnostic evaluations and services. "No one can really say whether vision therapy works or not, because studies haven't been properly conducted," said Dr. Freedman. "But we do know that by seeking out vision therapy, parents are actually delaying any improvement in their children's educational performance."