Adding MRI Sensible in *BRCA* Carriers Age 35-54

BY MARY ANN MOON
Contributing Writer

For women who carry the *BRCA1* or *BRCA2* genetic mutations, adding MRI screening to mammography screening for breast cancer can be cost effective even though MRI is so expensive, according to Sylvia K. Plevritis, Ph.D., of Stanford (Calif.) University and her associates.

Breast MRI screening is "at least 10 times more expensive than mammographic screening."

It also produces more false-positive results, which generate further costs for unneeded diagnostic workups.

"Because cost may be the greatest barrier to broader evaluation and dissemination of breast MRI screening, its cost-effectiveness is a critical consideration," the investigators noted.

Currently there are no randomized clinical trials examining the cost-effectiveness of MRI screening for women at high risk of breast cancer.

And even if such a trial were initiated today, "mortality outcomes would not be available for at least 15 years," Dr. Plevritis and her associates noted (J. Am. Med. Assoc. 2006;295:2374-84).

They estimated the cost-effectiveness of adding breast MRI screening to mammographic screening in women carrying *BRCA1* and *BRCA2* mutations using a computer simulation model that incorporated health benefits as well as expenses.

The model projected the long-term effects on clinical and economic outcomes of no breast cancer screening, annual mammography alone for women aged 25-69 years, and annual mammography plus MRI for specific age groups.

The model used a simulated cohort of women carrying the *BRCA* mutations who were aged 25 in 2005.

MRI screening was found to reduce breast cancer mortality by 23% over that obtained by mammography alone in women carrying either the *BRCA1* or *BRCA2* mutations.

For women with the *BRCA1* mutation, "adding MRI increases the sensitivity of annual screening from 35% to 85%, the proportion of axillary lymph-node–negative cancers from 57% to 81%, the mean lead time from approximately 1.5 to 3 years, and the false-positive rate from approximately 5% to 25%." Outcomes for women with the *BRCA2* mutation were similar.

"With MRI, life expectancy increases from 71.2 to 73.3 years for *BRCA1* mutation carriers and from 78.2 to 79.6 years for *BRCA2* mutation carriers," Dr. Plevritis and her associates wrote in their article.

Adding MRI to mammography was found to be cost effective for women aged 35-54 years.

It was not cost effective for the younger women in the simulation model (those aged 25-34 years) because of their lower incidence of the disease, and added MRI was not cost effective for the older women (those aged 55 and older) because of the competing risk of death from other causes. ■

Continued from previous page

The ideal person to test in a family is someone who has had ovarian or breast cancer, Dr. Lu said. In the case of a patient unaffected by cancer with a strong family history, advise them to be tested with someone in their family who has had cancer. The person who has had cancer must be tested first.

Pretest counseling is critical, Dr. Lu commented. Patients need to be aware of the range of possible results and the limitations of the test. They may also have questions about genetic discrimination, she said.

The test itself is a simple blood test and does not require fasting. It generally costs about $3,000 to do a full analysis with complete sequencing of both the *BRCA1* and *BRCA2* genes. The cost of predictive tests on a previously identified familial mutation is about $200-$400.

Insurance companies have generally been covering these tests. An analysis of MD Anderson data in 2004 showed that 87% of insurance preauthorization requests for genetic testing were covered. Of those covered, about 90% were covered at 80% or more.

"The bottom line is that insurance companies are paying for this test," Dr. Lu said. "The access to this genetic testing is much wider now than it was in the past." ■