

Cancer Treatment Gets Personal

BY ELIZABETH WHITTINGTON

More than 30,000 oncologists, researchers, and industry representatives from around the world gathered in Orlando, Florida in late May for the largest oncology meeting of the year. Scientists presented data that will change patient care, as well as updates in treatment, prevention, supportive care, translational medicine, and other cancer-related topics. This year's annual meeting of the American Society of Clinical Oncology focused on "Personalizing Cancer Care," a phrase that has been used for decades to describe individualizing treatment based on specific patient and tumor factors. The term is now becoming more than a buzz phrase because growing research into biomarkers has been able to allow doctors to know which treatments work in certain patients—and which ones don't.

Richard L. Schilsky, MD, president of ASCO and professor of medicine at the University of Chicago, believes the science is clearly moving in the direction of personalized medicine.

"Increasingly, we recognize that every kind of cancer is comprised of several genetically defined subtypes that have unique natural history and require unique treatment approaches," he told *CURE* after the meeting. "Also, we recognize increasingly that each patient is different in their risk of developing cancer, tolerance of treatment, and cancer outcomes—and that these differences are determined, at least in part, by genetic variation between people."

By using biomarkers and genetics, and by targeting specific pathways, researchers presented cancer research that can better predict which treatments will work best in specific patient populations, including those with triple-negative breast cancer, gastric, lung, colorectal, and other cancers.

Looking Beyond Location

A common anecdote on the rise of personalized medicine is the story of Herceptin (trastuzumab). Work done by researchers studying a protein called HER2 found that 20 to 30 percent of all breast cancers overexpress HER2—and by limiting Herceptin to women with these types of breast cancers, the response rate is about 50 percent (when combined with chemotherapy), which is considered a home run in oncology.

For years, Herceptin has been known as a breast cancer drug, but a decade after Herceptin was approved for metastatic breast cancer, results announced at this year's ASCO meeting showed the drug is also beneficial in certain stomach (gastric) cancer patients.

Eric Van Cutsem, MD, PhD, of the University Hospital Gasthuisberg in Belgium, presented data that Herceptin may also work in the 20 percent of stomach cancers that also express HER2. When Herceptin was added to standard chemotherapy, overall survival increased from 11.1 months to 13.8 months, a significant improvement in the hard-to-treat cancer.

“This is a great example of this whole concept of personalized cancer care,” Schilsky said in a press briefing at ASCO. “Until these data came out, we didn’t know we had to think about two different molecular subtypes of stomach cancer—HER2-positive and HER2-negative.”

Designer Vaccines

One of the most personalized treatments that were highlighted at ASCO this year was the final results of the follicular lymphoma BiovaxID study. While remissions are common in follicular lymphoma, recurrences and increasing resistance to therapies are common, enough so that the disease is often considered incurable. Researchers studied 117 patients to determine if the BiovaxID vaccine could delay or prevent recurrence.

Patients who had developed at least a six-month complete remission after chemotherapy were randomized to the investigational vaccine or control vaccine. In the BiovaxID arm, cancerous cells from the patient’s lymph node tissue were used to develop a vaccine that carried a protein unique to each patient’s tumor. When injected, the body’s immune system hones in on the vaccine’s foreign antigen and uses it as a key to find the same antigen on tumor cells. The study showed the vaccine delayed recurrence by a median of about 14 months.

Because the study design was based on early trials and approved before Rituxan (rituximab)—a monoclonal antibody that targets CD20 proteins on the surface of B-cells—became a standard of care, researchers hope to combine the vaccine with Rituxan to see if it will have an even greater benefit as a combination.

Looking at the Whole Picture

Schilsky also noted that personalized medicine does not always mean the best drug for the cancer, but also for the individual. A growing ability to choose treatments based on the patient’s side effects, lifestyle, and out-of-pocket cost has increased the individuality of cancer care. And improvements in quality of life over the years has been one of the “underappreciated advances in cancer care the past twenty years,” said Jennifer Obel, MD, at the quality of care press briefing at the annual meeting.

Schilsky says that in following with this year’s theme, ASCO has developed [survivors survivorship care plans](#) that oncologists can complete for their patients that recommend how to deal with post-cancer issues. “Each person is unique in the survivorship phase of their illness in that people vary in their risk of cancer recurrence, risk of second primary tumors, risk of delayed side effects of treatment,” Schilsky told *CURE* after the meeting.

Personalizing cancer care also has the opportunity to control the increasing cost of cancer care. Building on [last year's news](#) that certain colorectal cancer treatments are most effective in patients whose tumors have the normal KRAS gene, ASCO issued a recommendation in January that all patients be tested for KRAS mutation status and drugs that inhibit the epidermal growth factor receptor not be used for mutated KRAS colorectal cancer. The recommendation is meant to save patient's time and money, and avoid side effects of a treatment that would not be helpful.

Schilsky concluded in his ASCO presidential address with how personalized cancer care impacts more than just the individual patient. "By pooling our knowledge and resources, sharing our data, and practicing evidence-based, personalized care, we will do the very best for our patients, our profession, and the society in which we live."