LUNG CANCER UPDATES FROM 2017 ASCO ANNUAL MEETING (ASCO 2017)

By Janet Freeman-Daily
for Bonnie J. Addario Lung Cancer Foundation

Each year in early June the American Society for Clinical Oncology holds its Annual Meeting (called simply "ASCO") in Chicago. The theme for the 2017 meeting was "Making a Difference in Cancer Care WITH YOU." Over 39,000 cancer researchers, clinicians, patient advocates, and industry representatives from around the world gathered to discuss the latest scientific advances in cancer care, such as clinical trial results, new technologies, and best care practices.

WHAT HAPPENS AT ASCO?

ASCO takes place in McCormick Center on Lake Michigan in Chicago—few other conference centers are large enough to host it. My Fitbit claims I average five miles a day walking between sessions! ASCO fills the hotel rooms throughout the city, some of them nearly 6 miles away, and runs a fleet of a more than a dozen shuttle buses to ferry attendees between their hotels and the conference center.

A typical day for researchers starts around 7 AM and finishes around 10 PM. Many sessions are happening simultaneously, and it's literally impossible to attend all sessions that mention lung cancer. The poster sessions alone have hundreds of posters to view, and you likely run into people you know either presenting their poster or talking about someone else's poster. Fortunately, those who register have online access to the videos, slides, and posters so they can catch the sessions they missed.

In addition to conference sessions, attendees can wander a HUGE exhibit hall filled with pharmaceutical firms, biotech companies, publishers, cancer advocacy groups, and vendors of support services. Many attendees also schedule meetings with current or potential collaborators, funders, and trial sponsors, or are expected to attend one of the many cancer-related committee or steering group meetings that are held at a nearby hotel. Some patient advocates are so busy meeting with their grant recipients, researchers, and scientific advisory board members that they never get to attend a conference session! In the evening, attendees might attend a Continuing Medical Education meeting (complete with a free dinner), a reception hosted by an exhibitor or medical society, enjoy the many activities and entertainments Chicago has to offer, or meet with colleagues they only get to see at ASCO.

Below are highlights selected from over 2400 presentations relevant to non-small cell lung cancer (NSCLC), small cell lung cancer (SCLC), and mesothelioma. For more news from ASCO 2017, check out these resources:

- Browse Cancer.Net (ASCO's website for patients). Two places to start:
  http://www.cancer.net/research-and-advocacy/asco-annual-meetings (highlights from the meeting by day)
  http://www.cancer.net/blog/ (patient-friendly blogs about major findings)

- Search ASCO 2017 abstracts at https://am.asco.org/abstracts
- Filter a Twitter feed (https://twitter.com/) for tweets containing both #LCSM and #ASCO17

IMMUNOTHERAPY CLINICAL TRIALS

Lung cancer already has approved immunotherapy drugs, and new drugs are in development. These drugs are relatively new, and we still have much to learn. Researchers are studying how to detect which patients will be most likely to benefit from them, when they should be used in the treatment sequence, how they might best be combined with other drugs and with each other, how to detect and manage potentially severe side effects, and when to continue or discontinue treatment. Experts are still debating about the value of immunotherapy for patients who have driving mutations.

- **SCLC**: Early results show treatment with nivolumab (Opdivo) with or without ipilimumab (Yervoy) resulted in durable responses in patients with previously treated SCLC. Responses were seen regardless of PD-L1 status. http://www.cancernetwork.com/asco-lung-cancer/nivolumab-alone-or-ipilimumab-produced-durable-response-sclc
- **Mesothelioma**: Early research suggests immunotherapy (nivolumab or a combination of nivolumab and ipilimumab**)** may be effective for treating people with malignant pleural mesothelioma that has recurred after standard chemotherapy. More research is needed. https://www.asco.org/about-asco/press-center/news-releases/early-research-suggests-first-immunotherapy-mesothelioma
- **NSCLC:** Patients who are doing well clinically on atezolizumab when their cancer begins to progress may benefit from continuing on the drug after progression. http://www.cancernetwork.com/asco-lung-cancer/continued-atezolizumab-after-lung-cancer-progression-might-benefit-patients
- **NSCLC**: First-line treatment with pembrolizumab (Keytruda) instead of chemo resulted in fewer patients requiring second-line cancer treatment -- the patients on Keytruda had a longer time without progression after first line treatment. https://www.healio.com/hematology-oncology/lung-cancer/news/online/%7B7d9e7f9c-c66a-4f06-9ab3-e95da959cad5%7D/pembrolizumab-reduces-need-for-second-line-therapy-in-advanced-nsclc

TARGETED THERAPY CLINICAL TRIALS

Targeted therapy drugs bind to specific mutated proteins in cancer cells and inhibit the cell's cancer-like behavior, instead poisoning both healthy and cancer cells as chemo does. Those that treat cancer for lung cancer are usually in a group called tyrosine kinase inhibitors (TKIs), and each drug targets genomic alterations in specific genes. In lung cancer, approved TKIs exist for alterations in EGFR, ALK, ROS1, and BRAF genes. However, many more drugs are in clinical trials to target alterations in other genes such as HER2, MET, TRK, and RET, and research is being conducted on other genomic alterations as well.

- **EGFR mutations**: As a first-line treatment, dacomitinib provided five months longer progression-free survival than gefitinib (an FDA-approved TKI). However, dacomitinib also caused more severe side effects. http://www.ascopost.com/issues/july-10-2017/dacomitinib-outperforms-gefitinib-in-egfr-positive-nsclc/

- **EGFR mutations**: Stage 2 and 3A patients who had lung cancer surgery went about 10 months longer without cancer recurrence on gefitinib (an FDA approved TKI) than patients who received chemotherapy (vinorelbine plus cisplatin). The patients on gefitinib were also less likely to experience side effects. https://www.asco.org/about-asco/press-center/news-releases/targeted-therapy-can-delay-recurrence-intermediate-stage-lung
- **EGFR mutations**: Osimertinib was superior to chemotherapy in treating brain metastases for patients whose tumors have the T790M resistance mutation. http://abstracts.asco.org/199/AbstView_199_185658.html
- **ALK fusions**: Alectinib (an FDA-approved TKI) provided about 15 months more progression-free survival than crizotinib in first-line treatment. It also caused fewer side effects. This may signal a change in standard of care for ALK+ NSCLC. https://www.asco.org/about-asco/press-center/news-releases/alectinib-halts-lung-cancer-growth-more-year-longer-crizotinib
- **ALK fusions**: Lorlatinib showed compelling effectiveness in the body and brain for patients who had previously received one or more prior ALK TKIs. http://www.cancernetwork.com/asco-lung-cancer/lorlatinib-shows-promise-against-brain-metastases-alk-lung-cancer
- **TRK fusions:** Larotrectinib (LOXO-101) may be an effective treatment for adults and children whose cancers test positive for TRK fusions. This trial is open to all solid tumors. http://abstracts.asco.org/199/AbstView_199_195112.html
- **MET Exon 14 deletion:** Treating stage IV patients with crizotinib had significant survival benefit. This mutation occurs in 3% of NSCLC. Prognosis of patients who did not receive a MET TKI was poor. (This was a retrospective analysis of patient data, not a clinical trial). http://abstracts.asco.org/199/AbstView_199_194689.html
- **The design of precision medicine clinical trials:** As more driving mutations are identified that affect a small subset of cancer patients, randomized clinical trials are becoming less useful—it's too difficult to collect a group of patients that's large enough to gather statistically significant data. Some ASCO sessions discussed how clinical trials should be restructured to accommodate the smaller patient populations and still generate the data needed to obtain approval of new targeted drugs. More clinical trials are being designed as "basket trials" that accept all solid tumors with a specific genomic variation.

OTHER TREATMENTS

Cancer research involves more than just developing new drugs. Clinical trials are also used to improve existing treatments.

- **Radiation for symptoms of spinal cord compression**. A study of 688 people with metastatic cancer found that a single dose of radiation therapy is as effective as five doses of radiation therapy for metastatic spinal cord compression. http://abstracts.asco.org/199/AbstView_199_186591.html
- **Cisplatin for elderly patients:** Cisplatin should not be added to single-agent chemotherapy for elderly patients (ages 70 and older). Adding cisplating does not improve overall survival, and results in more severe side effects. http://abstracts.asco.org/199/AbstView_199_185084.html
- **Prophylactic Cranial Irradiation (PCI) for NSCLC**: For stage III NSCLC patients who receive radical therapy. PCI significantly reduces the proportion of patients developing

symptomatic and asymptomatic brain mets, but does not increase overall survival. PCI decreases global quality of life at 3 months after treatment, with no further decrease after that.
http://www.cancernetwork.com/asco-lung-cancer/pci-reduces-brain-metastases-without-influencing-overall-survival

DIAGNOSTIC TESTING

Precision medicine means personalizing cancer treatment to a specific patient's situation as well as their cancer's characteristics. In addition to presentations about treatments, ASCO has an increasing number of presentations about ways to identify the best cancer treatment for each patient, and to ensure patients get accurate and affordable diagnostic testing.

- **Biomarkers for immunotherapy**: Several presentations explored "tumor mutational burden" (a measure of the number of mutation present in a cancer tumor) as a biomarker to indicate which patients might benefit from immunotherapy. Other presentations sought to define how PD-L1 should be used to identify patients for immunotherapy. Some blood tests that look for certain proteins may be useful in identifying whether an immunotherapy is working before evidence is detectable on a scan.
- **Biomarkers for targeted therapy**: Genomic testing of cancer tumors can identify patients who may benefit from targeted therapy. New technologies and methods are being evaluated to determine the most accurate and cost-effective testing methods. A French study of 1,944 patients (http://www.ascopost.com/News/55703) found widespread genomic profiling was feasible, but not all patients tested positive for a treatable mutation.
- **Liquid Biopsies:** Several studies explored the value of ctDNA blood tests (one type of liquid biopsy) for early detection, monitoring patients for progression or recurrence, and identifying tumor characteristics that might be used to guide treatment. Several academic cancer centers are now using liquid biopsies to identify potential targeted therapies for a patient, with the understanding that such tests are have not yet achieved high accuracy. If the liquid biopsy results find an actionable mutation, they will prescribe the associated targeted therapy; if the tests are negative, many experts say they will pursue a tissue biopsy to validate the results. One study that used blood and urine tests to detect the T790M mutation found drug response to a positive tissue biopsy was similar to the response to a positive blood or urine biopsy (http://www.cancernetwork.com/asco-lung-cancer/plasma-urine-tests-can-help-detect-egfr-t790m-mutations-nsclc).

PATIENT CARE

Treating a cancer patient involves more than just prescribing a treatment that hopefully will shrink a tumor. ASCO sessions also address ways to make patients more comfortable, deal with psychological needs, and improve communication between patients and healthcare providers. Patient reported outcomes (pat

- Cost or financial toxicity of cancer care were topics in 174 sessions, some of which included patient advocates as presenters and/or panel members.
- Goals of care discussions and shared decision making (both of which involve the patient as a member of their own care team) were topics in 21 sessions.

- Patient reported outcomes (quality of life measures reported by patients to their healthcare providers) were the topic of 112 sessions.
- Results from a clinical trial of 766 people with advanced cancer showed that a simple web-based tool can help patients live longer. The tool allows patients to report their symptoms in real time and then alerts their health care team if severe or worsening symptoms are reported. https://www.asco.org/about-asco/press-center/news-releases/web-based-system-self-reporting-symptoms-helps-patients-live
- "Conquer Fear" face-to-face therapy program lowered fear of cancer recurrence more than relaxation training provided over the same 10-week period. http://abstracts.asco.org/199/AbstView_199_186249.html
-
- An 8-week, web-based stress management program called STREAM lowered distress and improved quality of life for people newly diagnosed with cancer. http://abstracts.asco.org/199/AbstView_199_187932.html
- Advanced cancer patients in a talk therapy program called CALM had fewer symptoms of depression and improved psychological well-being than those who received only screening for distress and basic psychosocial care. http://abstracts.asco.org/199/AbstView_199_193726.html