

ASCO at 50 ... we've come a long way, we know a lot, but we've only just begun

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I recently had both the pleasure and the challenge of attending ASCO 2014, the annual meeting of the American Society of Clinical Oncology. It was my first official ASCO meeting, and as an almost-third-year fellow in oncology, no amount of reading, research, scheduling, ASCO 2014 iPad app organizing, or even attending the day 1 early morning How to Navigate the Annual Meeting seminar could have prepared me for the experience.

This year's meeting marked the 50th anniversary of the establishment of ASCO in November 1964. Records document that the first meeting, in April 1965, took place in the Clover Room of the Bellevue Stratford Hotel in Philadelphia, where some 70 members and invited guests attended a series of 3 presentations on leukemia and multiple myeloma starting at 8 pm and finishing by 10 pm. The details of that first meeting are certainly in stark contrast to those of ASCO 2014, an event that brought upward of 30,000 people to Chicago for a meeting of the minds that spanned the better part of a week and where the work of national and international researchers was presented in the form of thousands of abstracts and hundreds of presentations. Fortunately, with my iPad app in hand I was able to systematically peruse dozens of informative posters, attend stimulating presentations, and be present for the standing-room only plenaries.

Most notable was that every poster I perused and in every session I attended, there was no hiding the palpable enthusiasm for cutting edge science and cancer therapy in the modern era. Nevertheless, whether the discussions centered on genome sequencing, tumor profiling and personalized medicine, targeting the MAP kinase pathways, novel immunotherapy techniques, or circulating tumor

DNA, I couldn't help thinking to myself, "It's been 50 years, we've come a long way, we know a lot, but it feels like we've only just begun."

Individualized medicine, personalized medicine, targeted medicine, precision medicine ... call it what you will, the concept that no 2 cancers are alike and therefore that treatment should be tailor made, has become crystal clear over the past decade. Those concepts were highlighted in a session titled *50 Years of Precision Medicine: Advances in the Field and Perspective on Innovative Randomized Clinical Trials*. Dr Apostolia Tsimberidou provided a summary of such prospective trials and included comments on the BATTLE-1 and -2 studies evaluating personalized treatment for non-small-cell lung cancer based on



molecular markers; the SHIVA trial focusing on treatment based on tumor profiles compared with conventional therapy for refractory disease involving all tumor types; and IMPACT 2, a prospective study in which patients with treated or untreated metastatic cancer are randomized to receive targeted or nontargeted therapy. Based on the currently available data, it is unclear how such tumor profiling will fit into the treatment decision algorithms for individual cancers. However, most agree that eventually as the science and technology matures, molecular profiles and pharmacogenetics will be more important in dictating therapy than pathological diagnosis alone.

In the same session, Dr Alexander Eggermont discussed some interesting aspects of targeted therapy. He explained that although we have a keener knowledge of pathways such as MAP kinase, it is clear that cross talk complexity between targets and pathways is an ongoing challenge. He described tumor evolution as a moving target and noted that

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we need to be open-minded to concepts such as drug holidays to restore sensitivity, unlikely therapy combinations, or individualized sequencing of treatments based on tumor plasticities. He briefly flashed the now familiar starburst, spider-web-like diagram of all known key targets and players in the molecular mechanism of cancer. It's the perfect representation of all we know and don't know. Dr Richard Shilsky summarized the session best when he concluded that "whatever precision medicine looks like in 50 years, we can be assured that, in the words of the great sage Yogi Berra, 'The future ain't what it used to be'."

No session better demonstrated the importance of reflecting on the past as we look toward the future than that presented by Dr Walter J Urba, titled *From Coley to Cure? Past, Present, and Future of Immunotherapy for Melanoma*. In a presentation that gave us updates on immunomodulation, check-point inhibitors, and adaptive T-cell therapy, we were reminded that were it not for Dr Coley injecting his cancer patients with heat-killed streptococcal organisms combined with the bacterium *Serratia marcescens* (Coley's toxin), we would not know nearly as much about immunotherapy as we do today.

Very possibly it will be the combination of all of the above approaches that will result in the ultimate benefit for some cancer patients. Debate however, continues regarding the source of tumor best suited for said molecular profiling, genome sequencing, and immune-related biomarkers.

In a number of presentations and posters there was intriguing discussion about circulating tumor cells and circulating tumor DNA being an accessible and eventually perhaps even a preferred means for evaluation and monitoring.

Although the number of attendees, the sheer square footage of McCormick Place, and the volume of scientific work were impressive, it was the overwhelming quality and sophistication of the scientific work and the profound communal dedication to treating patients with cancer that was truly awe-inspiring. It was an honor to be present at ASCO 2014. I am grateful to ASCO for providing me with a reminder that even though the science is changing by the second and that in many ways we've only just begun to understand how to treat cancer, we remain committed to the common belief and purpose that was set forth 50 years ago at the society's inauguration: "a society of clinical oncology, as sketched, when operative, has the potential of becoming the means for advancing and disseminating medical knowledge and contributing greatly to the improved diagnosis, treatment, well-being, and longevity of hundreds and thousands of fellow citizens with neoplastic diseases and to aid in the prevention of many others," as spoken by Dr Arnoldus Goudsmit to the founding charter members of ASCO in November 1964. It is with these memories of the past and promise for the future that I look forward to the next 50 years with great excitement and wonder, for I have just begun.