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# Musings of an Academician on Changing Times in Hematology and Oncology

*This is the tenth of a 12-part series: This year we're focusing on the phenomenal progress that the medical community has made in the 30 years of Federal Practitioner's existence. Each month we'll feature an editorial written by one of our Editorial Advisory Association members, reminding us how much has changed in their particular medical field over the past 30 years. This month's focus is oncology.*

I began making house calls when I was 5 years old. That was when my father started taking me along on his house calls. He was an internist in New York City in the days when doctors still made house calls, carried doctor bags, and sat with patients to comfort them. Together, we answered phone calls from distraught patients, tracked directions to their homes on our printed maps, and drove through lonely streets to find them. Throughout my childhood and until the time I entered medical school, I was my father's apprentice. We would enter into patients' homes where people were desperately awaiting our visit. All that my father had at his disposal was in his black bag—a stethoscope, a tuning fork, some digitalis, a prescription pad, and a pen. With those

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few tools, he would sit, listen, and examine his patient while I watched. Sometimes he would give some medicines from his bag, write a prescription, or just recommend rest, exercise, or fresh air.

As we left their homes, he would tell me their diagnoses. They sounded so complicated—pneumonia, gastroenteritis, or urinary tract infection. Later I realized how imprecise they were, and how limited the treatment options were. In those

and dying. Yet my father was always hopeful for a better day. "Someday, doctors will understand the underlying causes of all of these problems and will treat the cause not the manifestation. If you choose medicine, you will enter a world of untold possibilities. Doing medicine will give you opportunities to research better treatments, to make the world a better place, and to relieve the pain and suffering."

I was hooked. I entered medical

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days, treatments were limited: Pneumonia was often considered an old man's best friend to "guide him to the other side," and the only treatments for cancer were the symptomatic relief of pain and suffering and preparing one's patient to die.

I accompanied my father on house calls throughout my childhood, up to and including the time I entered medical school. I had initially recoiled at the thought of entering a world of such suffering, with so few options and so much death

school in the late 1970s, and my father and I continued our conversations until I began my residency in 1977. In July of that fateful year, my father suddenly died. The rest of my life has been largely a response to my father's challenge for me to do the research, make the world a better place, and relieve pain and suffering.

When I completed my residency 2 years later, I decided to enter the world of hematology/oncology. Here was a world where much needed to be done. At that time, there were

few treatments, and most patients died within weeks of a cancer diagnosis. There were, however, new drugs in development. One of these was nitrogen mustard, a derivative of a chemical warfare agent used in World War I; this agent could be adapted to kill leukemia. Other investigators recognized that suppressing folic acid could reduce the excess bone marrow activity seen in patients with leukemia. These and other early experiments gave rise to responses in some patients and hope. Gradually other drugs (eg, antimetabolites, alkylating drugs, and antibiotics) were used alone and then in combination. Gradually, cooperative study groups developed and tested new drugs and drug combinations in large numbers of patients. These studies dramatically improved outcomes for patients with cancer.

Later, changes in supportive care dramatically impacted patients' lives. The discovery of better antiemetics transformed wards from places where patients retched to where they rested. Dreaded lethal infections were suppressed with new antibiotic, antiviral, and antifungal medications.

Concomitantly, the advent of stem cell transplantation (SCT) transformed the field. The use of stem cells was initially only from matched siblings; later, cells from matched unrelated people and from umbilical cord blood allowed for many patients to be considered for transplant. Registries of cells from all these different sources were developed so that large numbers of people could find donors. In the early days of SCT, graft-vs-host disease was a miserable complication; however, prophylaxis and therapeutic regimens

have attenuated these complications. Implantable catheters were another transformative advance in oncology.

In addition, information technology (IT) continues to change patient care. Stationary phones, overhead paging, and paging devices have now been replaced with cell phones, smartphones, iPhones, and iPads. Medical records and chemotherapy orders are now electronically completed, reducing medical errors. Also, the enormous power of IT has allowed for statistical analysis and interpretation of massive amounts of data that could not otherwise be interpreted. Information technology, paired with molecular biology, is giving new hope for personalized treatments. Decoding of the human genome was transformative toward decoding tumor cell genomes; such decoding can reveal which molecules need to be targeted, and therefore, which molecularly targeted drug should be used. This approach means that each patient may be offered a uniquely designed personalized treatment for his or her specific cancer. Other innovations, such as vaccine therapy (already in use for patients with prostate cancer and leukemia) and targeting the microenvironment, are developing.

Perhaps the best testament to improved care in oncology is the emerging field of cancer survivorship. There are now more than 12 million cancer survivors, and this number is growing, a testament to modern treatment.<sup>1</sup>

Cancer prevention is gaining more attention. Smoking cessation programs, better diets, exercise, weight control, and avoidance of excess sun exposure can reduce cancer burden. Vaccines that reduce oncogenic vi-

ruses for hepatitis B and human papilloma virus will also reduce cancer incidence.

The future is becoming bright enough to imagine a world without cancer or at least a world in which cancer is no longer a life-threatening, dreaded, mutilating disease. My father's dreams of doing the research, making the world a better place, and relieving pain and suffering are coming closer. I feel honored to have played a role in the lives of so many children and adults with cancer. I, too, dream of a day when the next generation of doctors can extend the research, make the world an even better place, and relieve all of the pain and suffering of human existence. ●

### *Author disclosure*

*The author reports no actual or potential conflicts of interest with regard to this article.*

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## REFERENCE

1. Basic Information About Cancer Survivorship. The Centers for Disease Control and Prevention Website. [http://www.cdc.gov/cancer/survivorship/basic\\_info/](http://www.cdc.gov/cancer/survivorship/basic_info/). Updated September 25, 2013. Accessed September 27, 2013.