VIEWPOINTS

Educating Our Students About Pharmaceutical Care for Those Living With Cancer

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Educating pharmacy students about cancer and pharmaceutical care in oncology can be difficult. Teaching is still largely focussed around hospital-based injectable chemotherapy. How often do our students meet people with cancer? Good communication skills are essential, but do we ever focus on the particular difficulties around communicating with cancer patients? Have we ever considered educating students about pharmaceutical care for those living with cancer in the community?

Over the last decade, progress in the early detection of cancer, cancer therapeutics, and other treatments have produced significant improvement in patient outcomes. As patients survive longer, they are receiving more drug treatment for longer periods. In many cases, this drug treatment is delivered orally rather than in the traditional chemotherapy setting. As a result of these advances, pharmacists must rethink the way they deliver cancer treatment, and must develop the education of pharmacists involved in the delivery of healthcare to cancer survivors.

The term “cancer survivor” refers to an individual from the time of the diagnosis of cancer through the remaining years of their life (Lance Armstrong Foundation). For cancers diagnosed between 2001 and 2007, the 5-year survival rate was 67%; this was more than a third greater than the survival rate for cancers diagnosed between 1975 and 1977 (49%) (ACS).

New drug treatments for cancer are, obviously, a key reason for the improved survival rate for cancers. Druker and colleagues showed that among patients with chronic myeloid leukaemia (CML), imatinib has increased 5-year survival to 89%, from a rate of 68% to 70% using the previous treatments of interferon alfa and cytarabine. Stupp and colleagues reported that temozolomide added to radiotherapy treatment for glioblastoma increases overall survival at 5 years from 1.9% to 9.8%. Trial results with tamoxifen show the benefits of long term treatment: Hackshaw and colleagues reported that, 15 years after starting treatment, 5.8 fewer women out of every 100 who received tamoxifen for 5 years experienced breast cancer recurrence compared with those who received it for

2 years. Clearly, drug treatments are playing an important role in increasing survival rates and contributing to the phenomenon of “survivorship.” Consequently, as drug treatments are so important for prolonging survival in cancer, the role of pharmacists in contributing to cancer survivorship is a hugely important one.

The growing use of oral agents for the treatment of cancer means that the burden of care for administering chemotherapy increasingly falls on the patient with support from their community pharmacist. As noted by Osterberg and Blaschke, medication adherence is often poor for patients, especially for those with chronic diseases. Despite any assumptions that patients with a potentially life-threatening disease such as cancer will be adherent with their medication regimens, it is no different for patients taking oral chemotherapy. Tuma reported that among patients taking imatinib for CML or gastrointestinal stromal tumors, approximately 30% of patients stopped taking their medications for 30 or more days during the first year of treatment. Furthermore, medication adherence has been shown to decline over time. Partridge and colleagues reported that long-term adherence to tamoxifen therapy decreased from 83% during the first year of treatment, to 50% by the fourth year of treatment. Even more dramatically, as von Mehren and Widmer reported, the number of patients with full persistency to imatinib for chronic myeloid leukaemia and gastrointestinal stromal tumours declined from near 100% in the first 4 months of treatment to 23% at month 14.

Not surprisingly, adherence to oral chemotherapy affects clinical outcomes. Dezentjé and colleagues reported that among patients treated with tamoxifen, patients with more than 80% adherence had a 26% reduced risk of a breast cancer event compared to those with 80% or less adherence, and patients with more than 90% adherence had a 27% reduced risk of a breast cancer event compared to those with 90% or less adherence. Noens and colleagues reported that, among CML patients treated with imatinib, patients with suboptimal response to treatment had significantly higher mean percentages of imatinib not taken

(23.2%) compared to those with optimal response (7.3%). Furthermore, among patients who were treated for 12 or more months with imatinib, there was a significantly lower mean percentage of pills not taken (9%) in those patients with a complete cytogenetic response, compared to those who had an incomplete cytogenetic response (26%).

Pharmacists have been repeatedly shown to have a benefit in improving medication adherence. There is a clear role for pharmacists to play in assisting patients with cancer achieve better medication adherence. Simons and colleagues demonstrated that capecitabine adherence was improved to some extent with pharmacist intervention. Their pharmaceutical care intervention, which consisted of face-to-face consultation, written information, and telephone follow-up resulted in a significant improvement in patient adherence.

With long-term drug treatment, comes long-term adverse effects. The risk of adverse effects increases with increasing duration of therapy. Gambacorti-Passerini and colleagues reported that the proportion of patients who experienced at least 1 non-serious adverse effect from imatinib rose from 34.3% after 6 years of treatment to 52.6% after 8 years of treatment. Amir and colleagues reported that longer durations of use of aromatase inhibitors increase the odds of bone fractures by 47% compared to tamoxifen; when this figure was adjusted for the different survival rates in the aromatase inhibitor and tamoxifen groups, the odds were still increased by 45%. Long-term adverse effects, such as impaired cardiac function with doxorubicin, secondary cancers, and premature menopause with cyclophosphamide, and neurotoxicity with paclitaxel and oxaliplatin, also present a problem for cancer patients. Again, pharmacists have an important role in helping patients understand and manage adverse effects. But are we teaching our students to do this?

Pharmacists also have a key role in working with both clinicians and patients to identify drug-drug interactions. For example, erlotinib has a pH-dependent absorption – the lower the pH, the better the absorption – which means that extremely common drugs such as pantoprazole and ranitidine must be either avoided or used with caution.

All of these phenomena, including patient difficulties in maintaining medication adherence, the development or persistence of long-term adverse effects, and identifying

and managing drug-drug interactions, strongly demonstrate the value of preparing students for involvement in long-term cancer care, especially in the community and outpatient/ambulatory care setting.

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