

# With Oral Chemotherapy, We Simply Must Do Better!

Matthew Grissinger, RPh, FASCP



*Mr. Grissinger, an editorial board member of P&T, is Director of Error Reporting Programs at the Institute for Safe Medication Practices (ISMP) in Horsham, Pennsylvania ([www.ismp.org](http://www.ismp.org)).*

**PROBLEM:** Many health care organizations have focused on improving safety with parenteral chemotherapy but have done less to ensure safe practices with oral chemotherapy. Although oral chemotherapy is associated with ease of administration, an error with an oral agent can be just as deadly as an error with a parenteral formulation. Two years ago Ruth Ann Collins, a 60-year-old woman with a history of brain cancer, died a slow, painful death after accidentally taking the equivalent of three cycles of oral lomustine (Gleostine, Corden Pharma) therapy at one time (450 mg), believing the pharmacy had dispensed just a single dose (150 mg).

## About the Event

Prior to taking lomustine, Ruth had visited the university-based oncologist she had been seeing every two months since diagnosis. Ruth's brain tumor had increased in size despite several courses of intravenous irinotecan (Camptosar, Pfizer Injectables) and oral temozolomide. The oncologist recommended trying a single dose of lomustine 150 mg, followed by a reassessment in six weeks to evaluate the next steps. The oncologist at the university hospital contacted Ruth's local oncologist to discuss the recommended therapy. The local oncologist then sent a prescription for lomustine to Ruth's mail-order pharmacy. The mail-order pharmacy asked a specialty pharmacy to help fill the prescription, but it could not locate a supply of the drug, possibly due to a shortage of the 100-mg capsules. The mail-order pharmacy was able to procure lomustine and sent a three-dose supply of the drug to Ruth instead of a single dose. It is uncertain why the pharmacy sent three doses. Although most mail-order pharmacies dispense a three-month supply of many

medications, the plan for Ruth was to try a single lomustine dose and then reassess the benefit of further doses.

The mail-order pharmacy dispensed three prescription bottles. One bottle contained three 100-mg capsules; the second bottle contained three 40-mg capsules; and the third bottle contained three 10-mg capsules. The labels on the bottles provided instructions for taking a dose from each bottle for a "total of 150 mg daily once per month as directed." But there was no additional warning statement to reinforce that the patient should take only one capsule from each bottle. Ruth expected the pharmacy to dispense a single dose, and she was familiar with taking several different-strength capsules for a single dose when taking temozolomide previously. Thus, she took all three capsules from each of the 100-mg, 40-mg, and 10-mg bottles without giving it much thought.

Ruth's husband called her local oncologist, who called a poison control center. The center advised taking Ruth to an emergency department, where she received activated charcoal (about two hours after taking the capsules). She returned home but quickly became very ill. By week 4 after the overdose, Ruth's body was severely bruised and swollen, she was febrile and short of breath, she had pain over her entire body, and myelosuppression was so severe she was receiving platelet infusions every other day. Ruth suffered immense physical pain and died six weeks after the overdose.

## SAFE PRACTICE RECOMMENDATIONS

To safely manage oral lomustine therapy, consider these recommendations.

### Prescribers

- **Specify a single dose.** With lomustine prescriptions, specify dispensing just a single dose at a time. Do not prescribe or allow more than a single-dose supply of the drug.
- **Be specific with patients.** Patient counseling is critically important, and the drug should never be prescribed without talking to the

patient. Warn patients that a single dose should be taken no sooner than every six weeks, and that they should follow the directions on the label of the prescription bottle(s) to be sure they are taking a single dose.

### Pharmacists

- **Provide alerts.** Program warning messages such as "single dose only" into order-entry systems. Computers should not allow more than a single dose to be entered. Also configure the system to limit the quantity prescribed or dispensed to 300 mg or less for each prescription or order. Hard stops that won't allow you to dispense the drug more than once every six weeks would also be helpful.
- **Dispense a single dose.** Provide just one dose of lomustine per filled prescription. If multiple doses are prescribed, call the prescriber to request dispensing a single dose.
- **Combine strengths.** If allowed by state regulations, place the capsules comprising a single dose in a single vial (e.g., patient medication packet that complies with all label regulations to specify the vial contents and communicate that it holds a single dose).
- **Provide patient counseling.** Establish a system to ensure that patients receive counseling when picking up new prescriptions and refills for lomustine (e.g., electronic stop in the sales register that requires intervention and acknowledgement by pharmacists). Require the pharmacist to review the prescription label with the patient or caregiver, and use a teach-back method to confirm the patient understands the dosing schedule.
- **Enhance labels.** When possible, present dosing frequency directions and warnings on patient labels using bold font or all capital letters (e.g., **CAUTION: TAKE A SINGLE DOSE ONLY ONCE EVERY SIX WEEKS**). Use large print to assist elderly patients with poor eyesight. ■

