

Low Literacy Limits Drug Label Comprehension

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WASHINGTON — Patients who read at or below the 6th-grade level had a low level of comprehension of instructions on the labels of five commonly used medications, according to a study led by Terry Davis, Ph.D., of the Louisiana State University.

Even though labels seem short and to the point, “many patients need more specific, concrete information,” including instructions on exactly what time of day to take a medication, Ms. Davis said in presenting the findings at a conference on health literacy sponsored by the American College of Physicians.

Along with colleagues at Northwestern University, the University of North Carolina, Western Michigan Area Health Education Center, and Emory University, she queried 395 patients at three clinics that primarily serve the indigent about their understanding of labels for the following drugs: amoxicillin for pediatric use, trimethoprim, guaifenesin, felodipine, and furosemide.

The study was published online at the Annals of Internal Medicine Web site (www.annals.org/cgi/content/full/000605-200612190-00144v1).

The goal was to determine whether primary care patients could read and correct-

ly state how to take medicines after reading the labels on actual pill bottles, Ms. Davis said. The researchers hypothesized that patients with low literacy were more likely to misunderstand instructions. They also believed that the increasing number of medications taken by Americans is leading to growing confusion and medication errors.

Participants spoke English as a primary language and were not hearing or vision impaired. Half were African American and half were white. The mean age was 45 years, and 29% had a less than high school education. Literacy was assessed with the Rapid Estimate of Adult Literacy in Medicine (REALM) test. Of the 395 patients, 19% (75) were deemed to have low literacy, reading at or below a 6th grade level, and 29% (114) had marginal literacy, reading at the 7th- to 8th-grade level.

All patients were asked how they would take the medicine. A “correct” answer was given if they included all aspects of the label instruction, including dosage, timing, and duration. Overall, 47% (185) of patients misunderstood at least one of the instructions. For marginal literacy patients, 51% (201) misunderstood one or

more instructions, and for low literacy patients, 63% (249) misunderstood.

The majority—91%, or 359 patients—understood the felodipine instructions, which were, “Take one tablet by mouth once each day.” The lowest level of comprehension was for trimethoprim, which had a label instructing to “take one tablet by mouth twice daily for seven days.”

Higher literacy patients routinely understood instructions better than those with lower literacy, Ms. Davis said. The adjusted odds ratio of misunderstanding for low literacy was 2.32, and for marginal literacy, 1.94. Most misunderstandings had to do with dosage.

For instance, patients commonly believed they should give children a tablespoon instead of a teaspoon of amoxicillin.

Patients who took more medications were also more likely to misunderstand labels, with the adjusted relative risk rising from 2.29 for 1-2 medications to 2.98 for 5 or more medications.

In a substudy, patients were tested on their understanding of the instruction, “Take two tablets by mouth twice daily,” on a bottle of guaifenesin. Overall, 84% were able to correctly state the instruction,

but fewer patients knew how many pills to take. Among those with adequate literacy, 80% counted out the correct number of pills. That ability decreased with declining literacy: 63% of marginal literacy patients and 35% of those with low literacy could correctly count pills. Ms. Davis and her colleagues said that although this may have reflected patients’ numeracy skills more than reading skills, numeracy is an aspect of literacy.

Study limitations included the fact that the authors only examined understanding of the primary label. They did not assess patients’ actual compliance or drug-taking behavior, whether medication errors occurred, or if any of the patients had experience with any of the five medications.

In an editorial accompanying Ms. Davis’ study (www.annals.org/cgi/content/full/000605-200612190-00145v1), Dr. Dean Schillinger wrote that the authors did not fully prove out their conclusion that low literacy is correlated with poor comprehension because they did not “account for patients’ cognitive function or visual acuity—each of which can impair reading comprehension and could explain poor understanding of labels.”

But that “does not weaken the conclusion that many patients do not comprehend prescription labels and cannot act on their instructions,” added Dr. Schillinger, of the University of California, San Francisco. ■

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