Prospective Payment System and Hospitalization for Pneumonia in Italy

Metersky et al. reported that a shorter length of stay as a result of the introduction of the prospective payment system (PPS) among older patients with pneumonia admitted to acute care hospi-

Length of stay and Charlson Comorbidity Index score of patients with pneumonia by year of survey. PPS indicates prospective payment system.
maintained stable following the institution of PPS in Italy. This phenomenon, in addition to illustrating the inadequacy of the health care system, highlights the peculiarity of our society, in which the care of the elderly is almost exclusively the concern of the families. 1

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In reply

We would like to thank Dr Onder and his colleagues for their interest in our article. We are especially grateful that our work 1 has prompted more investigation into the important issues that both of our reports explore. Similar to what we observed in Connecticut, Onder et al found that, in Italy, the mean hospital length of stay for elderly patients with pneumonia declined during the 1990s, both before and after the institution of a PPS. However, in marked contrast to our results, they found that the percentage of patients discharged to nursing facilities actually declined from 9.1% to 8.4% during the study period.

Dr Onder et al postulate that the lack of increase in the percentage of patients being discharged to nursing facilities could be due to “inadequacy of the health care system,” presumably suggesting that there are not enough beds to allow an increase. While this may be the major factor, we note that the mean hospital length of stay in Italy only dropped to 15.4+9.3 days compared with the 7.7+7.2 days we noted in Connecticut. This greater length of stay in Italy may have resulted in less need to discharge patients to nursing facilities than in Connecticut.

As Dr Onder et al point out, outside of the United States, family members are often the caregivers after hospitalization. Whether the discharge destination is to a nursing facility or to the care of family members, the effect of the declining hospital length of stay on patient outcomes is poorly understood. It will also be important to determine how the declining hospital length of stay affects the emotional and financial well-being of the family members who act as caregivers after hospital discharge.

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Several epidemiological studies indicate an inverse association between intake of tea and coronary heart disease. However, the results of these studies have been somewhat controversial. In the older cohort of the Rotterdam Study, Geleijse et al 2 found an inverse association between drinking tea and aortic atherosclerosis. The protective effect was more pronounced in women than in men. In the Health Professionals Follow-up Study 3 and the Caerphilly Study, 4 which both included men only, no protective effect of tea or flavonoids was found.

In a letter published in the November 27, 2000, issue of the Archives, Geleijse et al 5 speculated on the above-mentioned results and hypothesized that estrogen-related mechanisms may account for the protective effect of tea on coronary heart disease. We do not object to this hypothesis; however, we offer another explanation: better bioavailability of quercetin from rutin in women compared with men, especially in women using oral contraceptives.

The flavonol quercetin is one of the most potent dietary antioxidants known. The compound is present in plants as glycosides, such as rutin (quercetinrutinoside) in tea. In rutin, quercetin aglycone is bound to the sugars glucose and rhamnose. Quercetin from rutin is absorbed from the distal parts of the small intestine or the colon after hydrolysis of the sugar moieties by intestinal enzymes. 6,9 Most likely of bacterial origin. Quercetin aglycone is absorbed from the proximal parts of the gastrointestinal tract, although at higher doses absorption probably occurs further down the intestinal tract as well. 3,9

We performed a diet-controlled, double-blind, crossover study to evaluate the relative bioavailability and pharma-cokinetics of quercetin from rutin and quercetin aglycone. 2 We administered 3 different doses (8, 20, and 30 mg, expressed as quercetin equivalents) of quercetin aglycone and rutin to 16 healthy volunteers (7 women and 9 men). The chosen doses were similar to those attainable from the diet. In our study, quercetin from rutin was much more bioavailable in women than in men, especially in women using oral contraceptives. For the 50-mg dose, for instance, the mean area under the plasma concentration–time curve (AUC) from 0 to 24 hours was 678 μg h/L for men and 1946 μg h/L for women (P<.008). The corresponding values for women using and women not using oral contraceptives were 2364 μg h/L and 1454 μg h/L, respectively. Sex or use of oral contraceptives did not affect the relative bioavailability of quercetin when given as quercetin aglycone.

There could be several explanations for the sex difference in bioavailability and the effect of oral contraceptives on plasma quercetin levels after ingestion of ru-