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The Medication Safety Program: Medication-Food Risks and Behaviors Among the PACE Elderly

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The Medication Safety Program: Medication-Food Risks and Behaviors Among the PACE Elderly

Nutritional status and eating behaviors play a significant role in the clinical effects of prescription drugs. Foods may alter the effect of drugs by interfering with pharmacokinetic and pharmacodynamic mechanisms. In addition, the use of drugs that interact with nutrients and affect eating behaviors are especially problematic for the elderly, and, in addition to other health problems, frequently leads to malnutrition. Despite the large clinical literature on the importance of specific drug-food interactions, little is known regarding these risks among the elderly. Magee Rehabilitation Hospital has a long history of providing rehabilitation and primary prevention programs for the elderly and is very interested in the potential role that drug-food interactions may play in age related health problems including injury secondary to falls.

In June of 1998 Magee Rehabilitation initiated the Medication Safety Program (MSP), a three-phase research and demonstration project funded by SmithKline Beecham Community Partnership. The goal of this research project was to explore the nature and extent of risks, and the degree to which elderly are knowledgeable and compliant regarding drug-food risks, in order to develop effective risk-reduction interventions. In addition to Magee Rehabilitation and SmithKline Beecham, the MSP partners included the Pennsylvania Department of Aging, the Pennsylvania Department of Aging's Pharmaceutical Assistance Contract for the Elderly (PACE) Program, First Health Services Corporation, the Pennsylvania State University (Departments of Biobehavioral Health and Nutrition), the Philadelphia Corporation for Aging, MCP Hahnemann University, HealthGuard, HealthCentral and Sessa & Associates.

Phase I of the MSP used historical data to examine the epidemiology of drug-food interactions related to fluid and electrolyte balance in the PACE population. Several databases containing pharmacy claims, drug attributes, and hospitalization records were linked and analyzed retrospectively.

The first study, which examined the association between prescription drug use and dehydration, found that 14% of all 1997 hospitalizations of PACE cardholders were associated with a diagnosis of dehydration. Older age, male gender, nursing home residence, and African-American race were all significantly and independently associated with increased risk for dehydration. Dehydration risk increases by 11% to 36% with each additional potentially dehydrating drug that is taken.

The second study examined differences between blacks and whites for hospitalization with hyperkalemia and hypokalemia. About 2% of hospitalized PACE enrollees were diagnosed with hyperkalemia, and 6% were diagnosed with hypokalemia. Hyperkalemia cases were more likely than controls to have used ACE inhibitors. In this study, blacks experienced greater risk of hospitalization with hyperkalemia than did whites, and this difference remained even when controlling for ACE inhibitor use. However, there was no difference between groups in risk of hypokalemia.

Phase II of the MSP was comprised of two cross-sectional surveys—telephone and mail—of PACE enrolled elderly. The surveys were targeted to specific risk groups of

elderly who were determined to be at risk for specific adverse effects of drug-food interactions. Risk groups included 1) elderly with diabetes; 2) warfarin users; 3) antihypertensive users; 4) users of drugs with potential appetite-suppressant effects; and 5) a random sample of PACE-enrolled elderly.

Of the 3,254 elderly who were contacted and identified as eligible for the study, 1,102 completed the telephone interview and of these, 81.7% subsequently completed the mail survey. Results on risk indicators for 3 of the 5 risk groups (elderly persons using antidiabetics, antihypertensives and anticoagulants) unambiguously indicate that there is risk for significant adverse clinical consequences due to lack of adequate knowledge of drug-food interactions and other health promoting behaviors.

Less than 40% of individuals on anti-diabetic medications reported that they knew certain foods could affect how well some medicines work. Only 1 out of 5 knew that certain foods could cause problems with the particular medicines they were taking. Among elderly antihypertensive users, only about 1 in 4 knew that certain foods affect how well some medicines work. Survey results suggest that fewer than 1 in 4 users of anticoagulants are aware that dietary behaviors and some foods can cause significant problems with the physiological effects of their anticoagulant medication. Moreover, 3 out of 4 of this group report not receiving recommendations on eating behaviors from any of their physicians or pharmacists. Finally, significant numbers of elderly users of anticoagulants may be generally lax about medication safety with about 12% reporting either taking fewer tablets than prescribed, taking their medication less frequently, or else completely stopping taking a prescription.

Contrary to expectations, our findings suggest that PACE participants taking centrally active medications with appetite suppressant properties may be at particular risk for health problems associated with obesity, rather than appetite and weight loss. More than 9 out of 10 elderly using drugs with appetite suppressant effects were not advised about the possible effects of their medications on appetite.

Phase I and II of the Medication Safety Program (MSP) have already made a significant impact on at least one large-scale health care system in Pennsylvania. Based on the results of the first two phases of this research program, PACE has agreed to include risk surveillance for drug-nutrition as part of their Retrospective Drug Utilization Review and Prospective Drug Utilization Review systems. Still, the full impact of the MSP program will not be realized until the completion of the proposed Phase III Intervention Plan. Thus far, the MSP research findings from Phase I and Phase II have mainly the potential to improve the health of the elderly by justifying interventions and by raising the consciousness of health care planners and providers. The true large-scale impact of the MSP program will be realized through funding and implementation of the planned Phase III risk-reduction programs.

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About the Author

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