REDUCING DELIRIUM AFTER HIP FRACTURE

To the Editor: I read with interest the two recent papers relating to strategies for reducing delirium after hip fracture[1,2] and the accompanying editorial.[3] Clearly these offer recommendations that should be heeded by all physicians involved in the care of such patients. It is encouraging to see that the topic of delirium is also receiving more general exposure and is now being appreciated as a major problem for patients towards the end of life.[4]

With respect to other approaches for diagnosis and management of delirium and the cost-effective aspects of such interventions, I would cite a brief study we performed[5] that demonstrated that a physician/nurse dementia team, although very labor intensive, is medically and financially a winner. We demonstrated that, for 12 control and 29 delirious patients, a cooperative effort between a geriatric physician and an advanced practice geriatric nurse working with geographically assigned house staff and primary nurse care teams resulted in improved recognition of delirium and achieved a shorter length of stay. Significant cost savings occurred over the 6-week period of the intervention (approximately $57,000). Because of the small sample size and short period of our intervention, we found no significant differences in deaths, restraint or neuroleptic use, or nursing home placement, which were all low in both groups. As was pointed out in the papers in the *Journal*, collaborative efforts in this area are fruitful, and, although much remains to be done, there is good reason to expect that major improvements can be made in outcomes for such patients, all we need to do is maintain our energy and focus.

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4. Casanett DJ, Inouye SK. Diagnosis and management of delirium near the end of live. Ann Intern Med 2001;135:32–40.
5. Webster JR, Chew RB, Mailiard L et al. Improving clinical and cost outcomes in delirium: Use of practice guidelines, and a delirium care team. Ann Long Term Care 1999;7:128–134.

ASPIRATION PNEUMONIA AND ALTERED DENTAL STATUS

To the Editor: In the May issue of the *Journal*, Terpenning et al. analyze dental and oral risk factors associated with the development of aspiration pneumonia (AP).[1] They analyze dentate subjects and a group of dentate and edentulous subjects. From their tables, it is possible to see that 28 of 218 dentate subjects (13%) and 22 of 140 (16%) edentulous subjects developed AP. Although the rate is higher in edentulous patients, in dentate patients, the more functional units (opposing teeth) and the more decayed teeth they had, the higher the risk.

Is the higher rate of aspiration pneumonia in patients with no teeth due only to confounding, or is there an independent (bad) effect of being edentulous?

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1. Terpenning MS, Taylor GW, Lopatin GE. Aspiration pneumonia: Dental and oral risk factors in an older veteran population. J Am Geriatr Soc 2001;49: 557–563.

Editor's note: The above letter was sent to the authors of the original article; their reply follows.

In Reply: Dr. Finucane has noted that our data show a difference in the cumulative incidence of aspiration pneumonia between dentate and edentulous participants. This is seen on Table 2, displaying bivariate relationships between oral health characteristics and aspiration pneumonia. In response to his observation, we tested the crude association between complete edentulism and aspiration pneumonia. We found no statistically significant difference for the cumulative incidence of aspiration pneumonia in the dentate versus the edentulous (odds ratio = 1.13; 95% confidence interval = 0.68–1.88).

To test the final adjusted model for confounding due to edentulism, we added a term for dentate versus edentulous in our original logistic regression model. This term was not statistically significant ($P = .48$) and did not substantially change the coefficient estimates for the original variables as presented in Table 4. Thus, our data do not support confounding by edentulism.

In response to questions about the number of functional units, we speculated in the paper on page 562 that the number of functional units in the dentate may reflect a greater surface area for plaque load. A further speculation led to a supplemental analysis of the cumulative incidence of aspiration pneumonia for the edentulous only. We found a persistent significance for the presence of *Staphylococcus aureus* in the saliva. Although not tested in this study, this could reflect the colonization of denture surfaces by *S. aureus*.

0002-8614/02/$15.00

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ARE THE UNSAFE COMBINATIONS ALWAYS INAPPROPRIATE?

To the Editor: We read the article on appropriateness of drug use in older people by Giron et al.[1] Are they justified in calling use of all drugs with a potential drug-drug and drug-disease interaction inappropriate? We studied the prevalence of a selected group of drugs with potential drug-drug and drug-disease interactions in older people (>75 years). First, we identified patients admitted to the hospital as a result of an adverse drug event. From this we chose the four most-common groups of drugs with a potential drug-drug or drug-disease interaction. These include use of antidepressants in cardiac disease, use of more than one drug known to cause bradycardia, coprescription of amiodarone and warfarin, and coprescription of nonsteroidal anti-inflammatory drugs and angiotensin-converting enzyme inhibitors.

Our study included older patients discharged from an acute medical unit during a 4-month period in 1999. We scrutinized the discharge prescriptions for any of the above-mentioned combinations. Of 1,103 patients discharged during this period, 132 (12%) had 144 (13%) of these combinations with a potential drug-drug or drug-disease interaction. The results are shown in Table 1.

Table 1. Potential Drug-Drug and Drug-Disease Interactions

Potential Interaction	n (% of total)
Antidepressants in cardiac disease	75 (6.8)
Tricyclic antidepressants	42
Selective serotonin reuptake inhibitors	32
Others	1
Drugs potentiating bradycardia	38 (3.5)
Digoxin + amiodarone	15
Digoxin + verapamil	8
Diltiazem + beta blocker	5
Digoxin + beta blocker	6
Diltiazem + digoxin	2
Diltiazem + amiodarone	2
Amiodarone + warfarin	26 (2.3)
Nonsteroidal anti-inflammatory drugs + angiotensin converting enzyme inhibitors	5 (0.5)
Total	144 (13)

The results illustrate that, even after careful review of their medications, a significant number of patients were discharged on drugs with potential drug-drug or drug-disease interactions. So these combinations were considered appropriate by their physicians, albeit unsafe because of the nature of their medical problems. Hence, we would like to disagree with the finding of Giron et al. that all unsafe combinations they found in their study were inappropriate. Unless a detailed review of the patients and their medications is made, the inappropriateness of the use of drugs with potential interactions cannot be judged. They have considered using a beta-blocker in cardiac failure as inappropriate, whereas we now have enough evidence to support their use. It is also interesting to note the absence of antidepressants, warfarin, and amiodarone in any of the potential drug-drug and drug-disease interactions reported in their study. A possible reason could be that amiodarone and warfarin were not as widely used during their study period (1994–96) as they are now. Prescribing in older people is a difficult task, and use of drugs with potential drug-drug and drug-disease interactions is unavoidable in a majority of patients because the presence of multiple pathologies.

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Editor's note: The above letter was sent to the authors of the original article; their reply follows.

In Reply: We appreciate the interest of Adhiyaman et al. in our study. The letter points to some of the limitations in performing population-based studies. Our findings were derived from the analysis of secondary data. As such, our objectives were pursued within the limits of data collected for other purposes. Additionally, the data for this study was collected over a period of 2 years, 1994–96, and so drug information would be based on what was used at the time of interview. Finally, as in most cross-sectional studies, the duration and chronicity of drug use cannot be ascertained with complete accuracy.

We agree with the assertion of Adhiyaman et al. that prescribing for older people is fraught with difficulties because multiple pathology, which allows for the prescription of drugs with contraindications or potential for interaction, is more often the rule. We were therefore prudent in interpreting the results of our findings by stating that we found substantial exposure to presumptively inappropriate use of drugs in this very old population (Discussion, page 281, paragraph 3, and Conclusion, page 282, paragraph 1). The contention of Adhiyaman et al. as to whether we were justified in calling all potential drug-drug and drug-