Relationship Between Patient Mortality and Nurses' Level of Education

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Relationship Between Patient Mortality and Nurses' Level of Education
Relationship Between Patient Mortality and Nurses' Level of Education
Relationship Between Patient Mortality and Nurses' Level of Education
Relationship Between Patient Mortality and Nurses' Level of Education—Reply

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In Reply: We agree with Dr Kim and colleagues that it is unlikely that HDL particle size represents the protective mechanism underlying the observed effects of ETC-216. Kim et al also point out the absence of a well-defined mechanistic explanation for the observed benefits of ApoA-1 Milano in carriers or following therapeutic administration. Now that we have preliminary evidence of a rapid regression of atherosclerosis in human subjects, we hope that our study will encourage further exploration of the molecular and cellular mechanisms of action of ApoA-1 Milano. Such efforts could provide important insights into the process of reverse cholesterol transport and lead to development of other approaches to achieve regression of coronary disease. Currently, the same team that developed ETC-216 is beginning human studies of a small molecule that appears to provide similar benefits and would be much easier to manufacture than a recombinant protein such as ApoA-1 Milano. If this peptide mimetic produces similar results to ETC-216 in human studies, it would establish the principle that the full ApoA-1 protein is not required to activate the reverse cholesterol transport system.

We appreciate the comments of Dr Sirtori, whose discovery of ApoA-1 Milano provided the basis for development of this therapeutic agent. In understanding the magnitude of the changes observed, it is important to consider the methods used in the study. Intravascular ultrasound pullbacks were performed for an entire vessel, not just a focal plaque. Accordingly, the extent of regression was quantified for an entire segment of the coronary (an average of 40 mm in length). Because some subsegments contain little atheroma and some contain advanced fibrocalcific lesions, the potential volume available for regression is limited. To fully understand the magnitude of the changes we observed, it is useful to consider the changes that occurred in the most diseased 10-mm subsegments. As we reported, a baseline atheroma volume of 74 mm³ was reduced by a mean of 7.2 mm³. We did not report this as a percentage change, but it can be calculated that this represents more than 9% of the atheroma. Accordingly, we believe that the observations in the rabbit carotid by Sirtori et al are consistent with the effect observed in our study. Perhaps the most important observation of our study is the finding that significant reduction in plaque volume can occur in only a few weeks, demonstrating the dynamic nature of coronary artery disease. Surprisingly, a disease that took decades to develop can regress in only a few weeks.

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Whole-Body Imaging for Cancer Staging

To the Editor: Dr Antoch and colleagues1 reported that combined whole-body positron emission tomography and computed tomography (PET/CT) had greater diagnostic accuracy for cancer staging than did whole-body magnetic resonance imaging (MRI). I believe, however, that the authors’ use of the term whole body is misleading, as their axial scanning range for both PET/CT and MRI did not appear to examine the brain, skull, or lower extremities. Lung cancer, for instance, commonly metastasizes to the brain. Furthermore, contrast-enhanced MRI has been reported to have higher sensitivity and specificity for brain metastases than PET.2 Although true whole-body PET requires additional time for image acquisition, it may provide a more accurate staging.

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Financial Disclosure: Dr Osman has received honoraria from Petnet Pharmaceuticals and Shared Medical Services.


In Reply: We agree with Dr Osman that the brain is an important site of potential metastatic spread. The head was part of the imaging field of view in all patients, and data analysis included assessment of the brain and skull. Thus, metastases to the brain and skull contributed to the assessment of the M-stage by the 2 imaging procedures. While bone metastases (including metastases to the skull) were evaluated separately in addition to the overall M-stage, the number of patients with metastases to the brain was too small for separate data analysis.

We also agree that the current use of the term whole body is somewhat misleading, as in most instances it refers to an imaging field of view covering the region from head to upper thighs, thus not including the lower extremities completely. Technically, inclusion of the lower extremities can easily be implemented in the scan protocols at the expense of slightly increased scan times. However, for the majority of malignancies, the extended field of view would rather show an effect on the accuracy of M-staging than on T- and N-staging. Our reported differences between PET/CT and MRI were mainly related to a more accurate assessment of the T-stage and N-stage by PET/CT compared with MRI. No statistically significant differences were found for the M-staging. Therefore it appears unlikely that the additional scanning of the lower extremities would result in a significantly different performance of the 2 imaging modalities.

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Relationship Between Patient Mortality and Nurses’ Level of Education

To the Editor: Dr Aiken and colleagues1 reported that surgical patients had lower mortality rates and lower rates of death from serious complications (failure-to-rescue rates) if they re-
To the Editor: Dr Aiken and colleagues\(^1\) concluded that public policy should encourage baccalaureate programs for nurses over associate or hospital diploma programs. Their analysis, however, suggests that nurse staffing has a similar effect on mortality as does education levels: decreasing nursing workloads by 2 patients was predicted to decrease mortality by 1.8 per 1000 patients, the same effect as increasing staff levels of nurses with a bachelor of science in nursing (BSN) degree by 20%. Given an environment of nursing shortages, increasing tuition rates, and an economically diverse labor pool, advocating a one-size-fits-all baccalaureate solution is not cost-effective policy. Increasing the employment of nurses of all types is equally as beneficial as increasing staff levels of those with BSNs. Availability of all types of educational programs allows future nurses to find a program that fits best, leading to a larger nursing labor pool.

I have several other concerns about this study. First, it is counterintuitive that the authors found no effect of experience on patient outcomes.\(^2\) The authors’ results imply that it would be safer to assign the sickest patients to a newly graduated nurse with a BSN instead of to an associate’s-level nurse with 30 years of experience. I suggest that the authors’ result reflects the likelihood that hospitals with more BSNs have the resources to hire more experienced nurses of all types. The small number of hospitals in this data set may preclude statistical analysis of education vs experience.

I also question the authors’ choice of quality measures. The nursing literature does not support mortality-related patient outcomes as appropriate measures of nursing quality.\(^3\) Better measures are those more directly aligned with care.\(^4\) I have reported that measuring mortality can produce opposite results to those from nursing-related outcomes.\(^3\)

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To the Editor: In the study by Dr Aiken and colleagues,\(^1\) it is puzzling that clinical outcomes were significantly related to nurses’ education and staffing but not to their years of experience. It is possible, however, that education may be a proxy for certification, with which it could be confounded. To the extent that this is true, education and experience may be colinear, and thus the statistical analysis would be unlikely to find that both variables are significantly related to the outcome. This is particularly a problem because the unit of analysis was hospitals, not individual nurses or patients.

The authors suggested that hospital care may be improved by limiting the number of patients assigned to each RN and also by increasing the certification level of RNs. Both forms of investment consume resources; the ideal mix of these remains uncertain. Many RNs appear to be leaving hospital care within the first 5 years of their career. Strict staffing minimums promise to reduce this burnout, and society gains twice. First, a nurse’s education bears fruit for more years. Second, the nurse acquires experience, which appears to be important despite the statistical results reported by Aiken et al.

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To the Editor: Dr Aiken and colleagues\(^1\) studied hospitals, not the educational level of individual RNs or the care delivered by individual nurses. Several nurses may care for a patient during a hospital stay. Because of staffing variability, it is impossible to cor-

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