with left heart failure, and fluid supplementation needs to be closely monitored in all our patients.

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Influence of Overweight on ICU Mortality

A Prospective Study

To the Editor:

We read with interest the prospective study of the influence of overweight on ICU mortality by Goulenok and colleagues1 in CHEST (April 2004), and noted the provocative findings and conclusions that obesity is an independent prognostic variable in ICU mortality. Despite the fact that the perception of obesity as a mere overfed state with excess energy storage in the form of fat is no longer sustainable in modern medicine, the insidious ramifications of the overfed model continue to permeate the management and epidemiologic research on obesity. The shortcomings of the body mass index as a measure of obesity are emphasized by the fact that the individual metabolic and physiologic aberrations that are common in obesity, such as impaired glucose metabolism2 and cardiopulmonary dysfunction, are by themselves significant independent variables in ICU mortality. Thus, unifying the term overweight under the rubric of body mass index grossly deflects our observations from the pathologic components of the obesity syndrome, which have an independent impact on mortality.

Jeevanandam et al3 observed that protein-energy malnutrition rapidly ensues among obese trauma patients, which is strongly suggestive of the fact that hypoproteinemia may be a regular feature among physiologically stressed obese individuals. An extrapolation of this observation includes the postulation that the stressed obese patient is in a malnourished state with the possibility of coexisting derangements in the utilization of or overt deficiencies of vitamins, metabolic cofactors, and minerals that may lead to suboptimal function under the high metabolic demands of critical illness. Yet, documentation of the nutritional status of the obese subject is distinctly sparse in the medical literature on the subject.

Perhaps significantly, the study did not report on the distribution of comorbid conditions such as hypertension, diabetes, depression, psychoneurotic illnesses, and sleep-disordered breathing that are encountered with increased frequency among obese subjects. If present, the multiple comorbid factors by themselves may be independent confounders of the observed mortality, besides being associated with the use of multiple medications, the potential of which toxicity in patients with critical illnesses is high due to a diminished drug clearance capacity.

While analyzing the mortality data for obese patients in the ICU, we should not neglect the fact that obesity is predominantly a disease of persons in the lower socioeconomic classes,4,5 whose utilization of health resources prior to hospitalization is marginal, and who are also known to have higher hospital mortality from cancer, cardiac disease, and major surgery owing to poorly explained factors.6,7

To the skeptic, a multifactorial condition such as obesity that has poorly characterized nutritional derangements, and a tendency for glucose impairment and complex cardiopulmonary disturbance, and is frequently associated with multiple medical problems does not measure up well as an independent determinant of mortality in the ICU without controlling for the associated factors.

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Overweight in ICU Patients

Is the Body Mass Index Reliable?

To the Editor:

In a prospective study, in order to examine the relationship between body mass index (BMI) and mortality among ICU patients, Goulenok et al found obesity (ie, BMI > 27) to be associated with a poorer clinical outcome. Surprisingly, their results are in contrast with the results from other investigations.2,3

Goulenok et al2 reported that body weight and size were measured for all patients. Importantly, the investigators measured weight and height, instead of estimating these parameters, to calculate the BMI.4 However, we still have some doubts about whether the BMI was calculated adequately in all study subjects.
If weight was truly measured in all patients, did the investigators adjust weights for fluid balances? This is not a trivial comment. The most severely sick patients (ie, those with the greatest risk for death) frequently need more fluids (especially when saline solutions are used for fluid therapy). This raises the total measured body weight and, thus, the BMI. Hence, BMI could be a confounder in this study.

Let us give two examples to illustrate the problem. After therapy with 7 L fluid, a person with a height of 6 feet 3 inches and a weight of 205 lb will have a BMI of 27.5, instead of 25.6, and a person with a height of 5 feet 11 inches and a weight of 183 lb will have a BMI of 27.6, instead of 25.5. Thus, more severely sick patients might become “obese” because they are sick.

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References

To the Editor:

We thank Dr. Dube for his very interesting comments about our article (April 2004).1 Indeed obesity is associated with physiologic and metabolic aberrations, such as impaired glucose metabolism, or comorbidity, such as hypertension, depression, or psychoneurotic illness. These factors probably play a major role in the increased mortality of this specific population as they are well-known factors affecting glucose metabolism in ICU patients.2 Unfortunately, we did not collect these data in our patients. We now would like to perform a multicenter prospective study that would aim to identify comorbidity factors that may be associated with the increased mortality observed in overweight ICU patients. Likewise, it would probably be interesting to register patients’ socioeconomic status as that may also interact with outcome. We fully agree with Dr. Dube that individualizing these factors probably will help doctors to provide specific care for overweight ICU patients. In this setting, body mass index (BMI) is an easy variable to collect in any ICU patient and could be used as an alarm for practitioners.

We also thank Drs. Schultz and Spronk for their very interesting comments about our article. To our knowledge, there are actually not just two but nine published articles1,3–8 or abstracts,3,10 including our study, that have analyzed the influence of overweight in ICU patients. The contradictory results provided by these different publications can be explained in part by differences in the terms used to study this population, and also by the timing and methods used for the evaluation of BMI. The large preponderance of different diseases in our study population (94.3%) probably influenced our results compared to those of other studies. Weight and size were measured for all patients at the time of ICU admission and that may also constitute a difference with the other published studies. We also tried to minimize the influence of fluid loading therapy administered soon after ICU admission. On the other hand, volume depletion (ie, diarrhea, bleeding, vomiting, and diuretic treatment) was not taken into consideration in the calculation of the BMI. The effort to integrate the amount of volume depletion and fluid therapy into the estimation of body weight is probably too difficult. The early measurement of BMI at ICU admission actually seems to be the best and easiest method for minimizing the influence of these factors.

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Endobronchial Endometriosis Nd-YAG Therapy vs Drug Therapy

To the Editor:

I read with great interest the selected report by Puma et al1 in a recent issue of CHEST (September 2003). They described a