Energy expenditure during barbiturate coma.
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Abstract
BACKGROUND:
Barbiturate coma may have a significant effect on metabolic rate, but the phenomenon is not extensively studied. The primary purpose of the current study was to compare the metabolic rate of general critical care patients with those requiring barbiturate coma. A secondary purpose was to evaluate the accuracy of the Penn State prediction equation between these 2 groups of patients.

MATERIALS AND METHODS:
Indirect calorimetry was used to measure the resting metabolic rate of mechanically ventilated, critically ill patients in a barbiturate coma and those of similar height, weight, and age but not in a barbiturate coma. Measurements of resting metabolic rate were compared with predictions using the Penn State equation accounting for body size, body temperature, and minute ventilation.

RESULTS:
The barbiturate coma group had a lower resting metabolic rate than the control group that remained lower even after adjustment for predicted healthy metabolic rate and maximum body temperature (1859 ± 290 vs 2037 ± 289 kcal/d, P = .020). When minute ventilation was also included in the analysis, the resting metabolic rate between the groups became statistically insignificant (1929 ± 229 vs 2023 ± 226 kcal/d, P = .142). The Penn State equation, which uses these variables, was accurate in 73% of the control patients and also the barbiturate coma patients.

CONCLUSION:
Resting metabolic rate is moderately reduced in barbiturate coma, but the decrease is out of proportion with changes in body temperature. However, if both body temperature and minute ventilation are considered, then the change is predictable.

KEYWORDS:
artificial respiration, critical illness, energy metabolism, indirect calorimetry coma, nutritional support, resting energy expenditure