Severe acute respiratory failure requiring mechanical ventilation is one of the most frequent reasons for admission to the intensive care unit. Among the most frequent causes for admission are exacerbation of chronic obstructive pulmonary disease and acute respiratory failure with acute lung injury (ALI) or with criteria of acute respiratory distress syndrome (ARDS). These patients have a high risk of malnutrition due to the underlying disease, their altered catabolism and the use of mechanical ventilation. Consequently, nutritional evaluation and the use of specialized nutritional support are required. This support should alleviate the catabolic effects of the disease, avoid calorie overload and, in selected patients, to use omega-3 fatty acid and antioxidantrich diets, which could improve outcome.

**Keywords**

Respiratory failure, Acute lung injury, Nutritional support, Omega 3 fatty acids.