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Critical care medicine: extracorporeal oxygenation is feasible in Brazil?

Medicina intensiva: a oxigenação extracorpórea é factível no Brasil?

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Ventilatory support has been a major reason for hospitalization in intensive care units (ICU) since the creation of these units, which came about precisely for that immediate need during the polio epidemic in Europe.^(1,2) In 1967, Ashbaugh described a series of severe cases marked by respiratory failure, cyanosis, hypoxemia refractory to oxygen therapy and high mortality, a condition that became known as acute respiratory distress syndrome (ARDS).⁽³⁾ Almost 50 years after the syndrome was first identified, the treatment of ARDS is still a major challenge for intensive care medicine and continues to be associated with high mortality and morbidity.^(4,5) Several therapeutic modalities have been proposed, with variable results, including in terms of cost. These therapies involve mechanical ventilation strategies,⁽⁶⁻⁸⁾ patient positioning,⁽⁹⁾ and the use of medications and gas mixtures,⁽¹⁰⁻¹²⁾ among other techniques. Recently, extracorporeal membrane oxygenation (ECMO) therapy has once again become popular.^(13,14)

ECMO, arising from surgery requiring cardiopulmonary bypass, has been used as a treatment for ARDS since the 1970s,⁽¹⁵⁾ with unfavorable initial results.^(16,17) However, the therapy was never definitively abandoned and, in 2009, with the influenza A (H1N1) pandemic, the use of ECMO showed more promising results in large case series in developed countries.⁽¹⁸⁾ The exchange of information between centers with experience in the method and professional qualifications clearly contributed to these results. In Brazil, the Park group⁽¹⁹⁾ and others⁽²⁰⁾ have demonstrated the feasibility of using the technique to support patients with ARDS refractory to conventional treatment in our units. However, in our country, this know-how is restricted to a few groups, and the use of ECMO in most services remains just a possibility.

The incorporation of the new therapeutic modalities, especially when they are invasive and incur a significant risk to the patient, presents a dilemma in the care team's decision making. Even when efficacy data from controlled studies are available, it is natural that the physician and the multidisciplinary team may hesitate to adopt measures that are still not widely used in their field.^(21,22)

From the manager's point of view, the dilemma may be even harder to resolve. Incorporating a new technology that requires significant resources can result in a lack of resources for other care activities that are already in place. Unlike the care team, the manager has fewer elements within the scientific literature upon which to base his or her decision and often must be guided by unmeasurable elements, which leads to the high likelihood of cognitive bias. A recent survey shows that the incorporation of health technology in the hospital

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setting rarely relies on cost-effectiveness analyses.⁽²³⁾ The study by Park et al. in this volume of *RBTI* may be one of the few elements that can help managers to make quantitatively justifiable decisions in this regard.⁽²⁴⁾

The study suggests that ECMO has an acceptable cost-effectiveness ratio in our environment and that in some hypothetical scenarios, it has demonstrated a capacity to save resources while improving adjusted survival rates. We should emphasize that economic analyses in the health field must be performed with parameters (especially those pertaining to cost) specific to the region in question. Unlike clinical efficacy studies, the possibility

of generalizing results obtained in distant countries is very small because there are differences with respect to both individual cost values of therapeutic elements and the number of elements used in the situations studied.

As the authors admit from the start of the article, the analysis presented is not definitive. However, it does bring to light an important issue in intensive care medicine from a little explored point of view - especially in the areas of techniques and equipment. An empirical study on this topic would still be interesting, but as of this moment, the authors have provided elements for making a more soundly based decision.

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