

A Systematic Review and International Web-Based Survey of randomized controlled trials in the perioperative and critical care setting: Interventions reducing mortality.

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Argomento: Anestesia generale

Background We aimed to identify interventions documented by randomized controlled trials (RCTs) that reduce mortality in adult critically ill and perioperative patients, followed by a survey of clinicians' opinion and routine practice to understand the clinicians' response to such evidence.

Methods We performed a comprehensive literature review to identify all topics reported to reduce mortality in perioperative and critical care settings according to at least 2 RCTs or to a multicenter RCT or to a single center RCT plus guidelines. We generated position statements that were voted online by physicians worldwide for agreement, use, and willingness to include in international guidelines.

Results From 262 RCTs manuscripts reporting mortality differences in the perioperative and critically ill settings, we selected 27 drugs/techniques/strategies (66 RCTs, most frequently published by NEJM -13 papers-, Lancet -7- and JAMA -5-) with an agreement $\geq 67\%$ from over 250 physicians (46 countries). Non invasive ventilation was the intervention supported by the largest number of RCTs (n=13). The concordance between agreement and use (a positive answer both to "do you agree" and "do you use") showed differences between western and other countries and between anesthesiologists and ICU physicians.

Conclusions We identified 27 clinical interventions with randomized evidence of survival benefit and strong clinician agreement in support of their potential life-saving properties in perioperative and critically ill patients with non-invasive ventilation having the highest level of support. However, clinician views appear affected by specialty and geographical location.

Table 1: List of the 27 topics which reached an agreement of >67% in the final web vote together with in order of percentage of agreement (“do you agree with the statement?” and with percentage of reported use (“do you routinely use these interventions in your clinical practice?”) and with willingness to have these topics included in future guidelines (“would you include these interventions into future international guidelines to reduce perioperative mortality?”).

STATEMENT	AGREEMENT	USE	GUIDELINES
Early defibrillation by trained rescuers reduces hospital mortality in out of hospital cardiac arrest	99%	94%	100%
Non-invasive ventilation reduces mortality in patients with chronic obstructive pulmonary disease	99%	96%	98%
Protective ventilation with low tidal volumes (6 ml/kg) reduces mortality	97%	97%	97%
Early thrombolytic therapy in acute myocardial infarction and pulmonary embolism reduces mortality	96%	85%	94%
Prone positioning reduces mortality in early severe acute respiratory distress syndrome patients (P/F< 150) especially if it is used early and in relatively long sessions (17-18 hours)	96%	79%	94%
Tranexamic acid in traumatic bleeding patients reduces 28-day mortality	95%	86%	92%
Clopidogrel reduces mortality after acute myocardial infarction	93%	87%	90%
Avoidance of deep sedation reduces mortality	93%	90%	94%
Non-invasive ventilation reduces mortality in acute respiratory failure in patients with pulmonary edema and/or hypoxemic-hypercapnic respiratory failure	90%	89%	92%
Albumin reduces mortality in patients with cirrhosis and spontaneous bacterial peritonitis	88%	82%	88%
Non-invasive ventilation reduces mortality during the weaning after extubation	86%	81%	88%
Epinephrine reduces mortality in cardiac arrest	84%	94%	92%
Amiodarone reduces mortality to hospital admission in out-of-hospital cardiopulmonary resuscitation	83%	71%	81%
Restrictive inspiratory oxygen fraction reduces mortality in intensive care unit patients and in the perioperative setting	83%	70%	70%
Underfeeding reduces mortality in patients with refeeding syndrome	82%	68%	82%
Volatile anaesthetics reduce mortality in cardiac surgery	81%	78%	78%
Early tracheostomy in severe stroke and early percutaneous tracheotomy in medical patients requiring prolonged ventilation (>14 days) reduce mortality	80%	75%	79%
Leukocyte-depleted blood transfusions reduce mortality in cardiac surgery	79%	59%	79%
Goal directed therapy reduces hospital mortality in patients with septic shock	77%	76%	79%
High flow nasal cannulae reduces mortality in patients with acute respiratory failure	77%	61%	75%
Procalcitonin -guided antibiotic discontinuation reduces mortality of critically ill patients	76%	61%	75%
Mechanical chest compression devices reduce short term mortality in cardiac arrest	75%	50%	75%
Selective decontamination of the digestive tract reduces mortality of critically ill patients	74%	32%	66%
Vasopressin with or without steroids reduces mortality cardiac arrest patients	70%	34%	65%
Levosimendan reduces mortality in patients with cardiogenic shock and low cardiac output syndrome	70%	57%	66%
Antithrombin III reduces mortality in septic and burn injured patients	67%	33%	62%
Hydrocortisone reduces mortality in septic shock	67%	66%	70%