Meeting report

Critical Care Canada Forum 2008, 11–13 November 2008, Toronto, Ontario, Canada

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The Critical Care Canada Forum was held in Toronto, Canada from 11 to 13 November 2008. This internationally recognized conference focuses on topics relevant to the care of critically ill patients, wherever these patients are located. The conference was attended by 1,146 healthcare professionals and featured 191 presentations covering many diverse topics; the results of several clinical trials were presented for the first time and ahead of print. In the present article we summarize some of the highlights of this meeting.

Mechanical ventilation

Dr Daniel Talmor (Boston, MA, USA) presented, for the first time, the results of a trial of positive end-expiratory pressure titration using esophageal pressure measurements (to estimate transpulmonary pressure) versus positive end-expiratory pressure titration according to the Acute Respiratory Distress Syndrome Network standard-of-care recommendations in patients with acute lung injury or acute respiratory distress syndrome [1]. The study reached its early stopping criterion and was terminated after enrolling only 61 patients; the ratio of the partial pressure of oxygen to the fraction of inspired oxygen at 72 hours was 88 mmHg higher in the esophageal-pressure-guided group (95% confidence interval, 78.1 to 98.3). A dynamic discussion subsequently ensued, during which several audience members applauded the use of physiology-guided mechanical ventilation, while others argued that a multicenter trial studying clinical endpoints meaningful to patients and clinicians should be conducted to confirm the anticipated benefits of positive end-expiratory pressure titration using esophageal probes.

Later in the conference, Dr Luciano Gattinoni (Milano, Italy) eloquently described how secondary lung injury from barotrauma and volutrauma might be reduced by mechanical ventilation in the prone position [2,3]. Published trials, however, have not yet established an overall survival benefit [4-6], and two recent meta-analyses [7,8] did not support prone positioning in the routine management of acute lung injury and acute respiratory distress syndrome. Dr Gattinoni showed that if the results of all trials are pooled [4-6] there is a trend towards improved survival when the analyses are restricted to the most severe cases of acute respiratory distress syndrome ($n = 150$; prone 6-month mortality 45.3% versus supine 6-month mortality 58.1%, $P = 0.057$). Dr Gattinoni then presented unpublished results from his new clinical trial of prone positioning versus conventional (supine) mechanical ventilation, which showed no difference overall but a trend towards improved survival with prone positioning in patients having the lowest ratios of the partial pressure of oxygen to the fraction of inspired oxygen [9]. He stressed that prone positioning relieves severe hypoxemia, and suggested that overly inclusive patient selection might have precluded previous clinical trials from demonstrating a survival benefit.

In a final plenary session, Dr Marco Ranieri (Turin, Italy) presented late-breaking results from a trial of early (days 3 to 5) versus late (days 10 to 12) tracheostomy on the incidence of ventilator-acquired pneumonia. Patients in the early tracheostomy group had shorter total duration of mechanical ventilation and intensive care unit (ICU) stay, and there were non-significant trends towards reduced ventilator-acquired pneumonia and ICU mortality [10]. Editorial comments provided by Dr Niall Ferguson (Toronto, ON, Canada) agreed that Dr Ranieri's results were indeed exciting, but cautioned that the trial was underpowered to conclude that the observed mortality difference was not simply due to chance or an imbalance in important patient and clinical characteristics.

ICU = intensive care unit.

Sedation and analgesia

Two trials comparing ICU sedation with dexmedetomidine versus benzodiazepines were presented in an exciting session on sedation and analgesia. First, Dr Pratik Pandharipande (Memphis, TN, USA) presented results from the recent Maximizing Efficacy of Targeted Sedation and Reducing Neurological Dysfunction (MENDS) trial [11], in which 106 mechanically ventilated patients from two centers were randomly assigned to receive sedation with lorazepam versus dexmedetomidine infusions for up to 120 hours. Patients in the dexmedetomidine group had more days alive without delirium or coma (median days 7.0 versus 3.0, $P = 0.01$), but there were no significant differences for 28-day mortality or cost of care. Results from the unpublished multinational Safety and Efficacy of Dexmedetomidine Compared to Midazolam (SEDCOM) trial were then presented by Dr Yahya Shehabi (Sydney, Australia). In this trial, 366 patients were randomly assigned to receive either continuous infusion of dexmedetomidine or midazolam (until extubation or 30 days). Patients in the dexmedetomidine group developed less delirium (22.6% lower incidence, $P < 0.001$) and had shorter time to extubation (3.7 days versus 5.6 days, $P = 0.005$). Both authors concluded that these two studies should help reassure clinicians about dexmedetomidine's safety and its potential ability to reduce delirium in the ICU.

The results of the Awakening and Breathing Controlled Trial [12] were also presented at the conference, by Dr Timothy Girard (Nashville, TN, USA). This trial randomly assigned patients from four centers to management using a protocol incorporating both daily interruption of sedation and a spontaneous breathing trial versus a protocol for daily spontaneous breathing trials only. Patients in the interruption of sedation and spontaneous breathing trial group spent more days breathing without assistance during the 28-day study period than did those in the spontaneous breathing trial-only group (14.7 days versus 11.6 days, $P = 0.02$), and were discharged from the ICU earlier (mean time in ICU, 9.1 days versus 12.9 days, $P = 0.01$). While some audience members expressed concerns that patients in the control group may have received spontaneous breathing trials while still being sedated, Dr Girard maintained that pairing of daily spontaneous awakening trials with daily spontaneous breathing trials resulted in better outcomes in his trial and should therefore become routine practice.

Glycemic control

This year's Critical Care Canada Forum featured many sessions discussing the optimal control of hyperglycemia in the ICU. A highlight of this track was the first-ever presentation of the results of a randomized controlled trial of intensive insulin therapy in critically ill patients by Dr Yaseen Arabi (Riyadh, Saudi Arabia). In this trial, 523 medical surgical ICU patients were randomly assigned to receive intensive insulin therapy (target glucose 4.4 to 6.1 mmol/l) or conventional insulin therapy (target glucose 10.0 to 11.1 mmol/l). No significant differences were observed between the two groups comparing hospital mortality, ICU or hospital length of stay, mechanical ventilation duration, need for dialysis, or rate of acquired infections. Hypoglycemia occurred more frequently, however, with intensive insulin therapy (28.6% versus 3.1% of patients, $P < 0.0001$) [13]. At the conclusion of the exciting presentation, the audience was left anticipating the results of the recently completed international, multicentered Normoglycemia in Intensive Care Evaluation Using Glucose Algorithm Regulation trial that will address a similar study question in 6,100 patients [14].

Critical care on the global stage

A new track at Critical Care Canada Forum 2008 focused on the delivery of critical care on the global stage. In a series of talks by Dr Robert Fowler (Toronto, ON, Canada), Dr Jean-Louis Vincent (Brussels, Belgium), Dr Fabrice Brunet (Toronto, ON, Canada) and Dr Tex Kissoon (Vancouver, BC, Canada), the audience was persuaded that regional and national critical care challenges are also pertinent to ICU practice worldwide. Regional problems, however, often become exaggerated on the global scale; for example, increased burden of illnesses, deficits in educational and research infrastructure, and poor access to medical supplies, and diagnostic and therapeutic equipment [15]. The presenters stressed that while we are trying to solve pressing issues here at home, we must also be concerned with the needs of developing countries.

Conclusions

This brief synopsis covers only a small sample of the content from the 2008 Toronto Critical Care Canada Forum. Many presentations also covered a diverse range of topics including ICU infections, glycemic control, cardiovascular disease, outreach and critical care response teams, neuroprotection and neuromonitoring, pandemic planning and pediatric critical care issues.

The 3-day conference was an enormous success, and planning is already underway for next year's event (www.criticalcarecanada.com). Save the date: 25–28 October 2009!

Competing interests

The authors declare that they have no competing interests.

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