

Meeting report

Eighth World Congress of Intensive and Critical Care Medicine, 28 October–1 November 2001, Sydney, Australia: Harm minimization and effective risk management

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Abstract

The 8th World Congress saw the presentation of several late-breaking findings, such as the role of insulin in reducing mortality, and technologies such as vital microscopy. There were heated debates for and against the role of gastric tonometry, enteral nutrition, extracorporeal membrane oxygenation, the question of 'closed' or 'open' intensive care units, and several others. The overall message was the need to study outcomes and practise intensive care in a sensitive and humane fashion.

Keywords acute respiratory distress syndrome, critical care, haemofiltration, insulin, sepsis

This report covers the 8th World Congress of Intensive and Critical Care Medicine and the pre-congress satellite meeting Ventilation and Oxygenation – Rainforest to Reef, held in Cairns, Australia, 23–26 October 2001, and the post-congress Symposium on Critical Care Nephrology, held in Melbourne, Australia, 1–3 November 2001.

The world congress is one of the largest critical care meetings in the world, with participation from researchers and clinicians from all over the world. Despite the recent tragic world events more than 2000 delegates attended the meeting, which catered for anyone with an interest in critical care and was hosted jointly by the Australian and New Zealand Intensive Care Society (ANZICS) and the Australian College of Critical Care Nurses, under the aegis of the World Federation of Societies of Intensive and Critical Care Medicine. Professor Malcolm McD Fisher of the Royal Northshore Hospital, St Leonards, New South Wales, Australia, presided over the conference.

This report focuses on the various scientific and social issues that face us as clinicians, in terms of the diseases, the technology, and finally ethical and social issues.

Acute respiratory distress syndrome (ARDS)

Dr Andrew Bersten of the Flinders Medical Centre, Bedford Park, South Australia, Australia, presented data on biological markers in ARDS. Surfactant protein B, a specific pulmonary epithelial marker with a short half-life, predicts the development of ARDS after an inciting event with high specificity and sensitivity. He stressed the need for large studies with multiple markers in predicting who will or will not develop ARDS.

Dr Marco Ranieri of the Università di Bari, Ospedale Policlinico, Bari, Italy, presented his new strategy of ventilation with the use of the stress index, which uses the slope of the pressure–volume curve to avoid the risks of ventilator-induced lung injury.

Metabolic and endocrine disorders

This was, by a long way, the session in which work was presented that could lead to fundamental changes in intensive care practice. Dr Greet Van den Berghe of the University of Leuven, Belgium, presented the results of a prospective randomised controlled study on the management

of hyperglycaemia in critically ill patients. A total of 1548 medical and surgical patients were randomised on admission either to a strict normalization of blood sugar to 4.5–6.1 mmol/l, using a continuous infusion of insulin called the 'intensive insulin schedule' (IIS), or to a conventional strategy of treating blood sugar levels above 12.0 mmol/l with the 'restrictive insulin schedule' (RIS). The patients tested were all those admitted to the unit and were well matched at inclusion. In the IIS group the mortality in the intensive care unit (ICU) fell by 43% (35 versus 63 deaths) and hospital mortality by 34%. The odds ratio on the IIS group (corrected for all univariate predictors of ICU death) was 0.52 (0.33–0.82) ($P=0.004$). This decrease in mortality was seen exclusively in long stayers (more than 5 days in ICU) and was from a reduction in multi-organ failure. There were few episodes of hypoglycaemias but no long-term sequelae. The blood sugar levels in the IIS were monitored hourly until stable then at 4 hour intervals from then onwards. This low-cost solution for reducing ICU mortality seems promising. As with any study, one needs to apply the findings to one's own patients, mindful of one's own system limitations. It would be important for this study to be repeated.

Dr Van den Berghe also presented data on the role of pituitary failure in patients who are critically ill for protracted periods.

Sepsis

Dr John-Louis Vincent of the Erasme Hospital, Brussels, Belgium, presented an overview of the study of sepsis so far and suggested that we move to a new definition, namely the IRO staging system: I for infection (localised, generalised or extensive), R for response (limited, extensive or excessive) and O for organ dysfunction (mild, moderate or severe), akin to the TNM staging of cancers.

Most of the sessions on sepsis focused on the role of coagulation and the factors affecting it. The data on drotrecogin alfa (activated) in severe sepsis (PROWESS study) were presented. Dr Peter E Morris of the Wake Forest University School of Medicine, Winston-Salem, North Carolina, USA, stressed the importance of patient selection and the caveats of using the drug. He also advocated good supportive intensive care.

Dr Simon Finifer of the Royal Northshore Hospital, St Leonards, New South Wales, Australia, presented prospective data involving 3548 patients from 21 Australasian ICUs from the ANZICS Clinical Trial group on the incidence and outcomes from severe systemic inflammatory response syndrome and sepsis. The overall mortality was 15.2%. Of this group, deaths were considered definitely preventable in 2.4% and possibly preventable in 23.1%. Although the overall mortality was comparable and lower than in other large national datasets, this thought-provoking and colossal study raises an important issue in

intensive care: that of harm minimisation and risk management.

Microcirculation and oxygen delivery

Dr Can Ince of the Academic Medical Center, Amsterdam, The Netherlands, presented his work on the development and use of orthogonal polarization spectral imaging or vital microscopy as a technique for the study of the microcirculation, and in particular the effects of vasoactive substances in tissue beds in shock. This promises to be an important new technology. Dr Bala Venkatesh of the Royal Brisbane Hospital, Herston, Queensland, Australia, presented some exciting work on tissue oxygen monitoring. This technology is in its infancy and there are several questions that remain unanswered, the main being which tissue bed should be monitored. Speaking on the oxygen affinity of haemoglobin, Dr Thomas J Morgan of the Royal Brisbane Hospital, Herston, Queensland, Australia, spoke of new drugs on the horizon that can manipulate the P_{50} point of the oxygen dissociation curve. RSR-13, a molecule derived from the lipid-lowering agent clofibrate, is currently being studied. He stressed the importance of drugs that can not only shift the curve but alter the shape of the curve ('co-operativity') itself.

Transfusions in critically ill patients

Dr Craig French of The Sunshine Hospital, St Albans, Victoria, Australia, presented a large dataset on the use of blood products in the Antipodes. These were results from a large prospective survey to document the indication for and appropriateness of blood transfusion involving 1808 admissions in 18 Australasian ICUs. The most common indications for transfusion were acute bleeding, diminished physiological reserve and altered tissue perfusion. Institutional transfusion rates were positively correlated with median pre-transfusion haemoglobin levels and the percentage of patients with a cardiovascular diagnosis who received a transfusion. Large epidemiological datasets such as this will assist the development of further trials of transfusion and appropriate use of blood products in ICU patients.

Critical-care nephrology

Dr Carlos Scheinkestel of the Alfred Hospital, Prahran, Victoria, Australia, presented some new work on the kinetics of amino acids and nutritional support in patients on continuous renal replacement therapy (CRRT). In 63 patients with multi-organ failure on CRRT, he found that when patients achieved a positive nitrogen balance their outcomes were better. He also found that this was possible when protein intake was increased to more than 2 g/kg per day. The administered amino acids did not reach the recommended blood levels until protein was administered at more than 2.5 g/kg per day. Dr Rinaldo Bellomo of the Austin & Repatriation Medical Centre, Heidelberg, Victoria,

Australia, presented *in vitro* data on the potential of newly developed 'super-high-flux' CRRT membranes in achieving significant clearance of cytokines such as interleukin-1 without losing albumin, by using haemofiltration and high-volume exchanges. This therapy can potentially alter the way in which we currently treat sepsis, because for the first time we have a technique that can truly clear the plasma of the proinflammatory mediators.

Ethics

Dr Charles L Sprung of the Hadassah-Hebrew University Medical Centre, Jerusalem, Israel) presented the results of the ETHICUS study, which looked at physician behaviour with regard to end-of-life decisions in 37 centres from 17 countries across Europe. Dr Stephan J Streat of the Auckland Hospital, New Zealand, argued that early withdrawal of intensive therapy in severely brain-injured patients is not merely justified but obligatory. In his study involving 66 patients with severe traumatic brain injury (acute injury score >4, Glasgow coma scale <3) of a total of 627 who were prospectively followed, 65 died (58 in ICU) within a median of 5 days. The only survivor was severely disabled.

Conclusion

In the words of Professor Luciano Gatinoni, 'Our Australian colleagues have put together a scientific programme which reflects cutting edges of science and the wisdom of experts in all aspects of critical care....' The Congress provided a forum in which researchers and clinicians could come together and look at the questions facing us as a speciality in these troubled yet exciting times. We reflected on what we have achieved and what is needed. The central theme was that the focus should be on harm minimization and effective risk management. This could require the application of the best available evidence to each patient and, on a more global scale, an investigation of the problem further, applying improved techniques of both research and methodology.

I feel we are at a unique moment in history; to quote George Santayana, '... nature is more than substance; it is a system of movements, forms, and transformations, which have their specific being in the realm of truth. This realm is non-natural in one respect; it is eternal....' Let us dedicate ourselves to the pursuit of this truth.

Competing interests

None.