

# Report from the 20th Annual Congress of the European Society of Intensive Care Medicine (ESICM)

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Berlin, Germany, hosted the 20th congress of the European Society of Intensive Care Medicine (ESICM) at the International Conference Center from October 7–10, 2007. In order to celebrate 25 years of progress and innovation in intensive care medicine, an attractive book was distributed to all attendees. The scientific program was fertile, making the session choice a challenge. A few key events are reviewed herein, with a special look at the “25 years of progress and innovation” sessions. These covered several fields of intensive care medicine.

## Technological advances

A session was committed to identifying the key factors in the evolution of technology in the intensive care unit (ICU). Michael Imhoff (Ruhr Universität, Bochum, Germany) summarized this progress, beginning his talk with the efforts of Florence Nightingale as far back as 1853. Briefly, Dr Imhoff outlined how technological advances are triggered by both medical and organizational demands. David Goldhill (The Royal National Orthopaedic Hospital, Stanmore, UK) used Scott's parabola to illustrate the course of technological progress. Despite several limitations, technological advances are associated with a favorable outcome. In fact, the real issue is how the technology is used, and how this affects outcome. Max Jonas (Southampton General Hospital, Southampton, UK) identified future ICU needs and illustrated his talk with measures of the respiratory changes that occur during exercise. This strategy helps in the screening of patients before surgery. Indeed, there is evidence to support the attainment of targeted goals, preferably before organ failure occurs [1]. Carl Waldmann (Royal Berkshire Hospital, Reading, UK) stressed the cost of technology and the need for improving its preclinical assessment. Michael Reng (Bogen District Hospital, Bogen, Germany) reviewed the clinical trials assessing new technologies. In summary, the pulmonary artery catheter is

ineffective for improving the outcome of patients; however, no superior effects on survival rates have been observed with the most recent comparators. Passive leg raising appears to be an easy maneuver with excellent sensitivity and specificity, and a low cost. The speaker also illustrated the conflicts associated with technological advances, using the case of obese patients as an example. Despite technical issues, their outcomes are similar to those of non-obese patients. In conclusion, the use of technology is essential but the ability of medical staff seems to be the predominant issue with regard to improved outcomes.

One session was dedicated to traumatic brain injury over the last 25 years. After a review of the pathophysiology of brain damage (John Povlishock, Virginia Commonwealth University, Richmond, VA, USA), Peter Andrews (Western General Hospital, Edinburgh, UK) described the mechanisms leading to secondary insults. The roles of hypoxemia, hypotension, and hyperthermia were underscored. Since its recognition, the efforts to reduce the secondary insult have been associated with a mortality rate reduction from 50% to 25%. Juan Sahuquillo (Vall d'Hebron University Hospital, Barcelona, Spain) highlighted advances in surgery. For brain contusion, the most effective ameliorative therapy may be surgical excision of the fatal edematous area. However, current guidelines should also be considered. In situations of increased intracranial pressure, the only positive results obtained following decompressive craniectomy were provided by a randomized clinical trial in children [2]. In adults, there is no evidence to support the use of decompressive craniectomy [3]; however, a clinical trial (RESCUEicp [Randomized Evaluation of Surgery with Craniectomy for Uncontrollable Elevation of intracranial pressure]) is currently underway to address this issue [4]. Lastly, the speaker encouraged the attendees to use observation rather than to rely solely on the current

evidence-base. For Giuseppe Citerio (Ospedale San Gerardo, Monza, Italy), the key to the outcome of such procedures is the expertise of the neurointensivist.

## Sepsis

The next session was dedicated to sepsis. Yaniv Almog (Soroka University Medical Center, Beer-Sheva, Israel) reviewed the various pathophysiological elements of sepsis. He described the importance of pathogen-associated molecular pattern recognition and showed interesting data on the cholinergic anti-inflammatory pathway – in particular the role of nicotine, the late mediator high-mobility group box 1 (HMGB1), and the complement pathways. Konrad Reinhart (Friedrich Schiller University, Jena, Germany) recalled that a total of 38 single molecule approaches have failed to improve outcome in sepsis. He then described the appeal of the PIRO (predisposition, infection, response, organ dysfunctions) system while biological markers remain non-specific. Dr Reinhart also described how procalcitonin is associated with a reduction in the number of days of treatment in community-acquired pneumonia.

## Supportive therapies

Jean-Louis Vincent (Erasmus University Hospital, Brussels, Belgium) debated the use of supportive therapy in sepsis. In short, intensivists should focus on blood flow rather than on blood pressure, although a minimal level of blood pressure is a prerequisite. The speaker reminded the audience of the negative effects of a supranormal oxygen delivery goal, and the inefficiency of dopamine for improving renal perfusion. This agent was associated with a poor outcome in the SOAP (Sepsis Occurrence in Acutely Ill Patients) study [5]. Vasopressin has been shown to be beneficial in a subgroup of patients with a less severe form of septic shock, in VASST (Vasopressin and Septic Shock Trial) [6]. The speaker suggested that this agent plays the role of a hormone rather than a vasopressor. The crucial issue in septic shock is the reperfusion of the microcirculation. A clinical trial comparing dopamine and norepinephrine as first-line agents in 1600 patients has also recently been completed (communicated at the 28th International Symposium on Intensive Care and Emergency Medicine meeting in Brussels, Belgium, in March 2008).

## Adjunctive therapies

Herwig Gerlach (Klinikum Neukölln, Berlin, Germany) reviewed the advances in adjunctive therapy. Regarding low-dose hydrocortisone, the results of the CORTICUS study (presented by Charles Sprung) did not confirm those of the earlier study by Annane et al. [7]. However, the two study populations were somewhat different, making definitive conclusions uncertain.

Dr Gerlach subsequently summarized the history of activated protein C (APC; drotrecogin alfa [activated]), starting from the molecule identification by Johan Stenflo and colleagues in 1978 [8], followed by a description of its regulation in patients [9]. After the positive data from the PROWESS (Recombinant Human Activated Protein C Worldwide Evaluation in Severe Sepsis) trial [10], confirmatory studies are now required to verify the efficacy of this treatment.

## Survival

In a session entitled “Survival in European ICUs: we learnt a lot, but have we become better?”, Jonathan Cohen (University of Brighton, Brighton, UK) suggested new approaches for microbial detection, with the aim of shortening the time for pathogen identification. He concluded by discussing the differential gene expression in human leukocytes stimulated with diverse bacteria, and the future place for transcriptional analysis of macrophages. All of the speakers (Jean Carlet, Fondation Hôpital Saint-Joseph, Paris, France; Jose Garnacho-Montero, Hospital Universitario Virgen del Rocío, Seville, Spain; and Christian Brun-Buisson, Hôpital Henri Mondor and Université Paris XII, Creteil, France) stressed the importance of educational programs in the approach to the management of sepsis.

Claude Martin (Hôpital Nord and Université de la Méditerranée, Marseille, France) highlighted the relationship between ventilator-associated pneumonia and mortality rates. Although the data related to this specific topic are conflicting, it seems that the older, immunosuppressed patient who is infected with an aggressive pathogen will probably die from his or her pneumonia.

## Mechanical ventilation

The “Berlin” room was full of attendees for the session on mechanical ventilation. Luciano Gattinoni (Università degli Studi di Milano, Milan, Italy) skillfully demonstrated the variability of lung recruitment. He first described how airway pressures are not an adequate surrogate for transpulmonary pressures, and then underscored the need for carefully selecting the patients in whom a high level of positive end-expiratory pressure will be successful [11]. In this regard, Dr Gattinoni suggested using a computed tomography scan. Marco Ranieri (Ospedale San Giovanni Batista, Turin, Italy) demonstrated that hyperinflation occurs despite the limitation of plateau pressures <30 cmH<sub>2</sub>O. In that situation, hyperinflation is associated with hyperinflammation and a poor outcome. Finally, Dr Ranieri presented promising alternative solutions, for example new methods of extracorporeal ventilation. Christian Putensen (University of Bonn, Bonn, Germany) gave a brief overview of the importance of

diaphragm contraction to improve lung recruitment. He nicely defended the hypothesis that the mode of ventilation sustaining the spontaneous breathing may improve the outcome of patients with acute lung injury. Laurent Brochard (Hôpital Henri Mondor and Université Paris XII, Creteil, France) discussed the process of weaning from mechanical ventilation. Beyond the protocols and automatic processes, he demonstrated the importance of the local hospital and staffing for providing the best level of care. This was also discussed in a presentation by Louise Rose and colleagues (RMIT University, Melbourne, VIC, Australia).

## Debates

In a series of “pro” and “con” debates, the first discussion was entitled “another placebo-controlled trial on activated protein C is unethical”; Jean-Louis Vincent presented the “pro” position, and Jean Carlet put forward the “con” viewpoint. They agreed on the significance of this treatment in septic shock. From the point of view discussed by Professor Vincent, the physician cannot randomize against placebo because of prior positive results. The mechanisms of action of this drug are probably related to the improvement of the microcirculation [12], and in a recent animal study, the administration of APC to septic ewes was associated with reductions in capillary leak, lactate levels, and lung edema [13]. Finally, Professor Vincent invited the attendees to participate in the RESPOND (Research Evaluating Serial Protein C Levels in Severe Sepsis Patients on Drotrecogin Alfa [Activated]) study, aimed at titrating the dosage of APC according to endogenous protein C levels. Professor Carlet supported the idea of conducting another clinical trial because there are too many “non-believers” who will never prescribe the drug. The lack of trust in this drug comes from its unclear mechanisms of action, poor clinical data (only one trial presenting positive data), possible toxicity, and negative editorials. Hence, the *Surviving Sepsis Campaign* recommendation for its use has been downgraded in the guidelines update – as having a low level of evidence (2B) [14]. In conclusion, there appears to be a need for another study in order to establish the efficacy of the drug in patients with shock.

## Predisposition

In a session on the predisposition to sepsis, Frank Stuber (University of Bonn, Bonn, Germany) presented important data on the relationship between gender and infection. Although, as the audience anticipated, female sex (specifically estrogens) seems to be protective, the speaker nicely demonstrated the complexity of this issue. Djillali Annane (Université de Versailles Saint-Quentin-en-Yvelines,

Garches, France) defended his hypothesis on hypnomidate and adrenal insufficiency, which is now called critical illness-related corticosteroid insufficiency (CIRCI). He concluded that ICU physicians should abandon the use of hypnomidate in potentially septic patients.

## Summary

In the poster sessions, John Myburgh (St George Hospital, Sydney, NSW, Australia) and colleagues were awarded the best abstract. Their study compared the use of epinephrine and norepinephrine for the resolution of shock in 280 patients with acute circulatory failure. No differences were observed between the two agents.

In conclusion, the 20th annual congress of ESICM was a very successful event. Despite the 25 years of progress and innovation, the community of intensivists appears to have more doubts than certainties in most fields. This perturbing situation makes debates captivating, and the potential for future advances is great. The enthusiasm for the next 25 years of research progress was perceptible in each session of this congress.

## Disclosures

The author has no relevant financial interests to disclose.

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