

Commentary

Recently published papers: Sepsis, glucose control and patient–doctor relationships

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Published: 1 February 2008

This article is online at <http://ccforum.com/content/12/1/112>

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Critical Care 2008, **12**:112 (doi:10.1186/cc6769)

Abstract

Sepsis is the leading cause of admission to critical care units worldwide, with increasing research and publications reflecting this. Tight control of the blood glucose concentration can reduce morbidity and mortality but the obtained values can be influenced by the method of measurement. Increasing awareness of interactions with patients and relatives can make or break relationships between staff and patients/families.

Severe sepsis and septic shock are significant health problems accounting for one in four deaths around the world per year. Target management for this unique group of critically ill patients has been based on the Surviving Sepsis Campaign guidelines of 2004; however, over the short period of time since their publication, a number of issues have changed in the management of this condition. January 2008 reveals the publication in *Critical Care Medicine* of the updated international guidelines on the management of severe sepsis and septic shock [1]. This publication is essential reading for all who are involved in recognising and managing patients with sepsis.

The updated publication follows the format of the previous 2004 guidelines. All recommendations are agreed by an international group of experts who represent 11 organisations and used a structured system to rate the quality of evidence and grade the strength of recommendations in clinical practice.

There is no space to review all the new recommendations in this paper here – but most aspects remain as per the 2004 guidelines. Changes from the 2004 guidelines include the removal of the adrenocorticotrophic hormone stimulation test prior to starting steroid therapy, affirming the use of steroid therapy only when hypotension responds poorly to fluid/vasopressor support, and clarification with regard to the use of recombinant human activated protein C. In summary,

Dellinger and colleagues' paper is one not to miss and should be read by all medical practitioners [1].

In keeping with the sepsis theme, a paper published recently in *Chest* set out to determine whether gender was linked to survival from severe sepsis [2]. Previous studies looking at the influence of gender on survival have shown that males have a higher incidence of sepsis, but whether this translates into a mortality difference is not known. Some studies have suggested that females have a survival advantage thanks to their sex-hormone profiles, but this has never been confirmed conclusively in any investigation. In an attempt to answer this question, the group studied 1,692 patients, with a diagnosis of severe sepsis, over an 8-year period from a multicentre French database [2]. The results showed a reduced mortality for females overall ($P=0.02$); however, when analysed for those older than 50 years of age the hospital mortality was significantly lower than in equivalent males ($P=0.014$), with no significant difference in mortality in those aged younger than 50 years ($P=0.98$). This paper would appear to contradict the hormonal basis, as one would expect the premenopausal women to have a survival benefit. Quite clearly there is a difference in disease processes between males and females, but in the case of sepsis perhaps the precise mechanism remains elusive. Perhaps now is the time to put the hormonal differences to bed (so to speak!) with regard to this particular question.

On a new topic, the importance of glycaemic control in reducing morbidity and mortality in the critically ill has become fully established over the past decade. The December edition of *Intensive Care Medicine* published two papers on this topic. The first article, by Nguyen and colleagues, looked at the relationship between blood glucose control and the development of intolerance to enteral feeding [3]. Their case-controlled, single-centre trial included 50 patients tolerant of enteral feed and 95 patients intolerant of

ICU = intensive care unit.

enteral feed – defined as a gastric aspirate volume of 250 ml or greater 6 hours or more after commencing enteral feed. All patients received a standard insulin infusion protocol to maintain blood sugars between 5 and 7.9 mmol/l. The results showed a higher frequency of raised blood sugars in the feed-intolerant group both before and during feeding, with the time taken to develop feed intolerance being inversely proportional to the admission blood sugar level. Interestingly, the amount of insulin administered to each group was the same. It is suggested that the reason for this difference may be due to occult diabetes mellitus since all aspects that could influence results between the two groups were matched. The authors suggest that tighter glucose control with insulin, albeit with the risk of hypoglycaemia episodes, should be adopted.

The second glycaemic control paper compared the accuracy with which fingerprick blood sugar assessments compared with venous plasma results [4]. This prospective observational study enrolled 80 patients with Acute Physiology and Chronic Health Evaluation (APACHE) II scores of 15 ± 6 . Simultaneous samples were taken once per day. Accuracy was defined as the percentage of paired values not in accord; >0.83 mmol/l for laboratory values <4.12 mmol/l, and $>20\%$ difference for laboratory values >4.12 mmol/l. Blood glucose differences >5.56 mmol/l were excluded. Their results showed a poor correlation between venous and fingerprick testing of blood glucose. In 44 paired samples (83%) the fingerstick sample result was greater than the venous sample result by up to 2 mmol/l. The authors conclude that the capillary technique for blood glucose estimation is inaccurate and that extreme caution should be used in protocols of tight glycaemic control with this method of blood sugar estimation.

Intensivists are increasingly aware of the need to respond to patients and their relatives as well as managing the disease and organ systems. Two papers published in November have looked at this important area. The first reviewed the satisfaction of relatives of survivors and nonsurvivors from a critical care unit [5]. A total of 539 family members were surveyed all with a family member in the intensive care unit (ICU). Satisfaction was measured with a questionnaire that was then compared with their relative's outcome. Their results demonstrate that relatives of an ICU survivor are less satisfied with the care received than those whose family member dies. This study demonstrated that relatives of patients who died were more satisfied with 'family-centred' aspects such as inclusion in decision-making, communication and family emotional support. The authors stress that this does not indicate that families of dying patients receive 'better' care; it suggests that intensivists may devote extra effort toward addressing family needs when the death of their relative is impending.

The second paper on this topic arose from the CoBaTrICE collaboration (a competency based training programme in

intensive care medicine) [6]. As part of this initiative, a survey was carried out in Europe to assess the views of patients and relatives with experience of the ICU regarding what attitudes and skills they expect specialists in critical care to have. A structured questionnaire was sent to patients and relatives after discharge from the ICU from 70 participating units in eight European countries. The questions were categorised as 'medical knowledge and skills', 'communication with patients' and 'communication with relatives'. The results show similarities as to patients' and relatives' views across the whole of Europe. All ranked medical knowledge and skills as the most important attributes, with communication being lowest prioritised. With regard to communication, the importance of clarity – an ability to explain medical matters in a simple language – was an over-riding theme. Interestingly, the lowest ranked aspects were related to patient autonomy.

Finally, after the recent festive season and gluttonous excess, a paper published in the January 2008 issue of *Critical Care Medicine* can bring some reassurance to us all [7]. This paper attempted to evaluate the effect of obesity on ICU mortality, length of stay and duration of mechanical ventilation for both medical and surgical patients. This meta-analysis reviewed 15,347 patients with a body mass index >30 kg/m² against nonobese critically ill adults. Their pooled results showed that obesity was not associated with an increased risk of ICU mortality ($P=0.97$). The duration of ventilation and the ICU length of stay, however, were significantly longer for the obese patient (1.48 days and 1.08 days, respectively; $P=0.04$ and $P=0.009$, respectively). The authors conclude that obesity in critically ill patients is not associated with excess mortality, but further studies are required.

Competing interests

The authors declare that they have no competing interests.

References

1. Dellinger RP, Levy MM, Carlet JM, Bion J, Parker MM, Jaeschke R, Reinhart K, Angus DC, Brun-Buisson C, Beale R, Calandra T, Dhainaut JF, Gerlach H, Harvey M, Marini JJ, Marshall J, Ranieri M, Ramsay G, Sevransky J, Thompson BT, Townsend S, Vender JS, Zimmerman JL, Vincent JL, for the International Surviving Sepsis Campaign Guidelines Committee: **Surviving Sepsis Campaign: international guidelines for management of severe sepsis and septic shock: 2008.** *Crit Care Med* 2008, **36**:296-327.
2. Adrie C, Azoulay E, Francais A, Clec'h C, Darques L, Schwebel C, Nakache D, Jamali S, Goldgran-Toledano D, Garrouste-Orgeas M, Timsit JF: **Influence of gender on the outcome of severe sepsis: a reappraisal.** *Chest* 2007, **132**:1786-1793.
3. Nguyen N, Ching K, Fraser R, Chapman M, Holloway R: **The relationship between blood glucose control and intolerance to enteral feeding during critical illness.** *Intensive Care Med* 2007, **33**:2085-2092.
4. Critchell CD, Savarese V, Callahan A, Aboud C, Jabbour S, Marik P: **Accuracy of bedside capillary blood glucose measurements in critically ill patients.** *Intensive Care Med* 2007, **33**:2079-2084.
5. Wall RJ, Randall CJ, Cooke CR, Engelberg RA: **Family satisfaction in the ICU: differences between families of survivors and nonsurvivors.** *Chest* 2007, **132**:1425-1433.
6. The CoBaTrICE collaboration: **The views of patients and relatives of what makes a good intensivist: a European study.** *Intensive Care Med* 2007, **33**:1913-1920.

7. Akinnusi ME, Pineda LA, El Solh AA: **Effect of obesity on intensive care morbidity and mortality: a meta-analysis.** *Crit Care Med* 2008, **36**:151-158.