The European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC): a special issue of full papers (Amsterdam meeting 2010) and conference abstracts (Erlangen meeting 2011)

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This issue of the Journal of Clinical Monitoring and Computing is the second annual special issue of The European Society for Computing and Technology in Anaesthesia and Intensive Care (ESCTAIC) (www.esctaic.org). ESCTAIC is a multi-disciplinary forum for communication between the clinical disciplines of anaesthesia and intensive care medicine and the technical disciplines including engineering and computer science.

This issue includes abstracts from ESCTAIC's 2011 meeting in Erlangen [1], plus full papers invited from selected authors following ESCTAIC's 2010 meeting in Amsterdam [2]. The tradition for publishing abstracts and full papers from ESCTAIC will continue in the journal and authors have already been invited for the 2013 special issue, and further will be invited following ESCTAIC's 2012 meeting (www.esctaic.org/congress/2012).

Eight full papers [3–10] were accepted following peer review for publication in this issue, and these reflect the activities of ESCTAIC meeting participants. Three of the papers [3–5] deal with monitoring of oxygenation and perfusion covering a spectrum of topics from basic physiological principles to the state of the art in monitoring technologies. Schober and Schwarte [3], starting with the clinical need to prevent hypoxia and hyperoxia, provide a review of the basic physiology of oxygen transport and a state of the art description of perfusion and oxygen monitoring technologies necessary to evaluate oxygen status. These range from standard systemic oxygen monitoring techniques in the blood and respiratory gasses to modern tissue and cellular oxygenation measurements. Truijen et al. [4] continue the theme of perfusion monitoring,

describe the state of the art in non-invasive blood pressure and cardiac output monitoring using finger-cuff and pulse contour analysis. Scheeren et al. [5] take a deeper look at monitoring of tissue oxygenation using near infrared spectroscopy. They provide a review of the technology and its application in the monitoring of cerebral and peripheral tissue oxygenation in clinical scenarios including cardiac surgery and following trauma, including the authors own clinical experience.

Monitoring the effects of Anaesthesia is a topic often addressed in ESCTAIC meetings. Jeanne et al. [6] present evaluation of the analgesia nociception index (ANI) as a tool in finding the correct antinociception/nociception balance. They evaluate the index in a group of 15 patients undergoing laparoscopic appendectomy or cholecystectomy, concluding that ANI seemed more sensitive than heart rate or systolic blood pressure to moderate nociceptive stimuli.

The capture, representation and effective use of clinical data is an important topic to both ESCTAIC participants and the journal's readers. Hurrell et al. [7] describe a strategy and progress toward defining a standards-based anaesthesia record using a consistent model and vocabulary and using international standards. The effective use of clinical data is highlighted by two papers looking at clinical decision support [8, 9]. Blagev et al. [8] present a summary of the large quantity of work that has taken place over several decades at the University of Utah and collaborative partners, in the field of clinical decision support based upon automated protocols. Medical applications areas range from fluid administration, to glucose regulation and mechanical ventilator control, with protocols implemented locally and over many institutions, using various platforms including web-based browsers. From their experience the authors offer an eProtocol development

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roadmap. Pielmeier et al. [9] present a clinical decision support system for glucose regulation based upon physiological models rather than clinical protocols and evaluate this in 12 patients from a neurotrauma intensive care unit with 6 randomized to glucose regulation using the system. They show that, even in this small patient group, significant improvement in the mean and variance of glucose level could be obtained using the system.

The final article of the issue [10] deals with one of the less technological aspects of ESCTAIC participants interests. Gurman et al. [10] review issues related to the stress levels of the anaesthetist, including the origins and potential consequences of stress, and the quantitative monitoring of stress levels with a particular focus on the role of salivary cortisol.

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