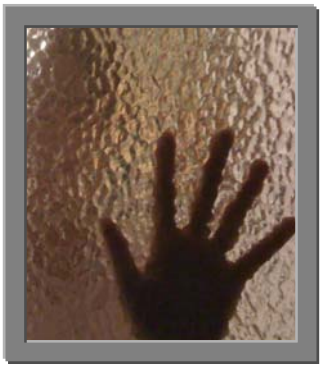
Working Group on Postoperative Delirium and Cognitive Dysfunction
Collaborative Joint section WG-PoDeCoD
POIC and NICEM

Dear ESICM members,

We would like to invite you to join our **Working Group on Postoperative Delirium and Postoperative Cognitive Dysfunction (POCD)** a collaborative joint between the section of Post Operative Intensive Care (POIC) and Neurointensive Care and Emergency Medicine (NICEM).



Preamble
Delirium is seen in every sixth of our patients in the recovery room and in 30 – 80% of the patient in the ICU. Delirium can induce long-term cognitive dysfunction seen in approximately 30% of the surgical patients at discharge from the hospital. The relative risk to develop dementia is 10-fold elevated in patients who developed delirium. As delirium is relevant with respect to long-term morbidity and mortality, monitoring should be performed. The intention of the working group on postoperative delirium and cognitive dysfunction group (WG-PoDeCoD) is to improve and standardize care to counteract delirium and to improve cognitive outcome of the patients.

Rationale:
This Working Group was founded to booster the multidisciplinary international collaboration of dedicated experts in the field of postoperative delirium and cognitive dysfunction.

Aims of the working group

- to translate the scores used to monitor delirium currently not available in all European languages. The translation has to be performed according to a standardized protocol (ISPOR task force for translation and cultural adaptation. Value Health 2005; 8 94-104).
- generate international consensus for delirium monitoring and cognitive testing in peri-operative patients.
- to inform on research projects in this setting
- to start collaborative research projects
- to organise platforms for international exchange of experts in the field
- to be in contact with national anaesthesia and intensive care societies, international societies and specialist groups

Background:

Experts at the 'Surviving Intensive Care' 2002 Roundtable Conference held in Brussels, strongly recommended future investigations in neurocognitive dysfunctions as one of the key components to improve long term outcomes in the critically ill (1). Current data suggest that approximately one-third or more of ICU survivors develop ongoing and persistent cognitive impairment (14). The reported incidence of delirium in medical and surgical ICUs (MICU/SICU) varies from 11% (2) to over 80% (3, 4) depending on the patient population studied and diagnostic methods used. Delirium in critically ill patients is reported to be independently associated with a significantly higher 6-month mortality rate, increased ICU and hospital costs, as well as poor cognitive outcome (5, 6). Despite high prevalence rates in the ICU, delirium often goes unrecognized by clinicians (7) or its symptoms are incorrectly attributed to dementia or depression. Educational interventions including the use of a validated delirium assessment instrument achieved a sevenfold increase in the number of nurses who used the tool (12% vs. 82%) and who used it correctly (8% vs. 62%) (8). Especially physicians' ability to accurately detect delirium in ICU patients improved significantly after use of a validated delirium score (9). Additionally, delirium-specific multidisciplinary education and nurse-led intervention programs in non-ICU settings have resulted in a decrease in the duration and severity of delirium without advising on any specific pharmacotherapy (10,11). These data underline the need for data to support recommendations for delirium assessment in all critically ill patients (12,13).

Postoperative Cognitive Dysfunction (POCD) refers to an aggravation in cognition (including memory, learning and the ability to concentrate) occurring after anaesthesia and surgery. Delirium and POCD suggests that attention deficits may place delirium and POCD on a continuum of the postoperatively disordered brain. POCD needs to be differentiated from postoperative delirium as it is usually only detected through neuropsychological testing. It lasts longer than delirium and does not fluctuate. It may improve over time but cognition may also permanently remain altered. Activity of daily living may be impaired; as well mortality may be increased. POCD is associated with increased cost of the social system and influences the ability to work. The international study on postoperative cognitive dysfunction (ISPOCD), a large multicentre European study, was able to identify some risk factors like increased age and types of surgery, but failed to identify many modifiable factors. However, any illness that requires hospitalization may lead to a cognitive decline. Therefore, it is essential in cohort studies to not only match for age, but also for disease and hospitalization. Baseline cognitive testing is essential in order to determine the change in cognitive decline of an individual patient, as well as the comparison with an appropriately matched control group in order to eliminate the learning effect. As the causes for postoperative cognitive dysfunction is

multifactorial it is important to record all possible confounders. Possible causes may be related to surgical stress, cerebral emboli, residuals of medication, disturbances in neurotransmitters and POCD may also follow postoperative delirium. A major limitation of several studies of POCD is the difficulty to compare the cognitive testing used. In order to assess all dimensions of the cognitive decline, not only one single test, but rather a test battery is used. Besides paper and pencil test, nowadays electronic tests become more widespread. However, the interrater variability of the different tests may be high. It is almost impossible to pool data across studies in order to achieve power in secondary analysis. Currently no gold standard exists that defines POCD. Therefore neither the incidence nor the importance of POCD may be determined without dispute. In a systematic review from 2007 by Newman regarding postoperative cognitive dysfunction after noncardiac surgery not only the definition of POCD was standardized, but also the types of tests, the learning effect and the intervals between testing. Besides most of the studies being underpowered, the influencing factors were often only poorly controlled. As research of POCD is still yet only in the beginning, new research protocols need to achieve sufficient uniformity and power in order to draw clinically relevant conclusions. The term POCD as a binary definition may not be sufficient for performing studies. POCD rather needs to be regarded as a continuously changing status. As years of research regarding POCD did not provide sufficient answers, it is important to coordinate study design and define what is clinically relevant. Controlled studies need to be relevant for routine patient care. Only with defined endpoints it is possible not only to look for risk factors for POCD, but also to search for possible preventive measures or therapeutic options. Recent studies could show that delirium increases the risk for early postoperative cognitive dysfunction (POCD) (15) as well as long-term cognitive impairment (16). In addition a previous delirium increased the risk of need for long-term care and had significant effects on subjective and measured cognitive impairment (17).

References

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Focus:
The working group will focus on establishing delirium and POCD as an outcome parameter for quality assurance of perioperative and intensive care treatment. Routine delirium screening and certain standardized reliable cognitive test batteries need to be established, in order to identify the magnitude of delirium and POCD in the perioperative and intensive care setting. The research to determine influencing modifiable factors is yet in the beginning. Comparable valid cognitive monitoring is the basis for further research. Adequate delirium scores need to be implemented and cognitive tests should be worked out as a prerequisite for defining and measuring delirium as well as POCD. The likely role of delirium in contributing to long-term cognitive impairment suggests the need for larger, prospective cohort studies to better identify risk factors for development and persistence of POCD. As with mortality, cost, length of stay, and failure of extubation, the presence of long-term cognitive impairment among critically ill patients represents a significant, lasting burden for patients and their families.

Goal:
The primary goal of this working group is to establish a European consensus process with the aim to generate international guidelines for cognitive testing and delirium monitoring in perioperative patients. This guideline process can be achieved by providing a basis for international experts in the field within this working group helping us to start an integrated effort in designing multicentre trials, collaborative research projects, and international exchange of researchers in the field. Further goals are to connect the activities of this group with national societies and international societies.

Organisation:
The Working Group on Postoperative Delirium and Cognitive Dysfunction (WG-PoDeCod) is an official part of the collaboration between the POIC and NICEM section within the ESICM. The task of this WG is to coordinate the specific projects between the POIC and NICEM section within its scope and address specific issues of postoperative delirium and cognitive dysfunction. This WG will have four meetings per year, whenever possible combine with the ESICM meeting, the ISICEM meeting, and other international meetings dealing with perioperative intensive care.

Sponsors:
European Society of Intensive Care Medicine
http://www.esicm.org/

Supporters WG-PoDeCoD:
Collaborative joint section POIC and NICEM

• Mario Cibelli	Great Britain	⇒ more information
• Guiseppe Citerio	Italy	⇒ more information
• Martin Franck	Germany	⇒ more information
• Ulf Guenther	Germany	⇒ more information
• Anja Heymann	Germany	⇒ more information
• Michael Hiesmayr	Austria	⇒ more information
• Alexander Kalb	Germany	⇒ more information
• Kees Kalisvaart	Netherlands	⇒ more information
• Alawi Luetz	Germany	⇒ more information
• Robert Jan Osse	Netherlands	⇒ more information
• Martijn Poeze	Netherlands	⇒ more information
• Theodossis Papavramidis	Greece	⇒ more information
• Finn Radtke	Germany	⇒ more information
• Ralph Vreeswyk	Netherlands	⇒ more information
• Claudia Spies	Germany	⇒ more information
• Bernard Walder	Switzerland	⇒ more information

Every ESICM POIC or NICEM section member is cordially invited !

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Links

Europe

European delirium Association
http://www.europeandeliriumassociation.com/

ICU Delirium
www.icudelirium.co.uk/

International

Wes Ely's ICU Delirium and Cognitive Impairment Study Group
http://www.icudelirum.org/

Projects

started:

- Translation and Validation of Delirium scoring instruments in different languages

in preparation:

- European Survey on Delirium incidence, monitoring prevention and therapy
- Implementation studies: Impact of delirium monitoring in the recovery room and the ICU
- Intervention studies:
- Screening risk factors
- Pharmacological intervention
- Definition of delirium and related terms:
- Postoperative delirium a continuum of cognitive disorders

Projects started:

- Translation and Validation of Delirium scoring instruments in different languages

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Score	Language	Translation	Validation
CAM-ICU	English		X
	German	X	
	Spanish	X	
	Portuguese	X	
	French	X	
	Italian	X	
	Dutch	X	
	Czech	X	
	Danish	X	
	Swedish	X	X
	Norwegian	X	
	Greek	X	

Score	Language	Translation	Validation
ICDSC	English		X
	German	X	X
	Greek	X	
	French	X	

Score	Language	Translation	Validation
NuDESC	English		X
	German	X	X
	French	X	

Score	Language	Translation	Validation
DDS	English		X
	German	X	X

Next meeting

Meeting of the WG - PoDeCoD
Date: October 12
Time: **9.00 - 11.00 a.m.**
Location: **ACV - BM5**