Infection Section

Working Group on Pneumonia

Tuesday 8th of October 2013 - 14.30-16.00
Meeting Room: BM1
Palais des Congrès de Paris, Paris
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WG on Pneumonia

Values

• The WG on Pneumonia values evidence-based diagnosis, treatment and prevention of pneumonia which leads to improved outcomes for critically ill patients managed in an intensive care unit (ICU) setting.

Mission

• The WG on Pneumonia seeks to establish a global ICU network with ability to undertake large-scale epidemiological studies on current practices in the diagnosis, treatment and prevention of pneumonia.

• The WG on Pneumonia will build research capacity and drive knowledge translation to reduce the incidence of VAP in the ICU setting and improve outcomes for critically ill patients diagnosed with all forms of pneumonia.

• Collaboration with other ESICM WGs & other societies.
WG on Pneumonia
Strategic Direction

1. **Practice evaluation and optimisation- focus on prevention, diagnosis & management.** Highlighting areas for *improvement in current practice* associated with the diagnosis, treatment and prevention of pneumonia subgroups compared with best-evidence guidelines and providing a methodological approach for quality improvements.

2. **Epidemiological evaluation.** Reporting on the incidence, aetiology, time course and predictive factors for improved clinical outcomes in relevant subgroups of critically ill patients in a global population.

3. **Antimicrobial stewardship in pneumonia.** Better understanding of international antimicrobial prescribing practices by type of pneumonia, including antimicrobial choice, dose, duration and de-escalation resulting from microbiological information.
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2A. Update on the publications of the EU-VAP/CAP Study

EU-VAP/CAP Study: Completed- Ongoing publications

- EU-VAP/CAP Study was an ESICM-endorsed prospective, observational multicentre study that included all types of pneumonia (severe CAP, HAP, VAP) in ICU patients in 27 ICU of 9 European nations. It is the largest multinational European study till now of ICU pneumonia.

- In the EU-VAP/CAP Study 2,436 patients intubated for > 48 were recruited, including 1,089 patients with pneumonia.

- Important conclusions were drawn from the analysis of the EU-VAP/CAP database that is still exploited.
## Update on the publications of the EU-VAP/CAP Study

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<tr>
<th>Journal</th>
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<tr>
<td>Intensive Care Medicine</td>
<td>2 (2010, 2013)</td>
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<td>American Journal of Critical Care</td>
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Update on the publications of the EU-VAP/CAP Study

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Awards
Research Citation Finalist SCCM 2013 for the abstract entitled: ‘Incidence, Risk Factors, and Mortality for Ventilator-Associated Pneumonia in Middle-Aged, Old, and Very-Old Critically Ill Patients.’
Update on the publications of the EU-VAP/CAP Study

• Accepted for publication:

• Revised by co-authors; to be submitted to ‘European Respiratory Journal’ by 15th of October 2013:

• Initialised or planned articles:
- ‘P.aeruginosa VAP’
- ‘Severe CAP in Elderly’
WG on Pneumonia

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Update on CAPUCI II Study

- Prospective, observational multicentre study (endorsed by ESICM) on patients with severe Community-acquired pneumonia admitted to the ICU

- Conducted in collaboration with the ESCMID Study Group on Infections in critically ill patients (ESGCIP).

- Ongoing study

- At present 476 ICU patients with sCAP have been enrolled
WG on Pneumonia

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European multicenter study on ventilator-associated complications (IVAC study)

PI: Lila Bouadma; Steering Committee: TBA from The WG & Infection Section

The study was developed by Dr Lila Bouadma and a proposal was presented in the Infection Section meeting in 2012 Lisbon by the chair of the Infection Section Prof. Timsit. A study protocol has been developed (LB). To provide an international picture of the Ventilator-Associated Complications (VAC) two complementary studies will be conducted:

• One-day, European international prospective, point-prevalence study in order to provide information regarding the prevalence of VACs in critically-ill patients.

• Two-month prospective European multicentric study in order to provide a picture of the extend and patterns of VAC in ICUs around the world.
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International multicenter study on ventilator-associated pneumonia

PI: Despoina Koulenti; Steering Committee: TBA from The WG & the Infection Section

Simplified description:

• Prospective observational multicentre survey of patients with a clinical diagnosis of ventilator-associated pneumonia (VAP)

• Setting: 70 or more intensive care units around the world.

• Aim of the study will be to provide up-to-date comprehensive data on the diagnosis, treatment and outcomes associated with VAP.
International multicenter study on ventilator-associated pneumonia

Research Problem

• There is a discrepancy between the diagnosis of ventilator-associated pneumonia (VAP) in clinical practice and official definitions of VAP as well as between the guidelines for VAP management and the clinical practice.

• Comprehensive and up-to-date information on incidence, aetiology, treatment course and clinical outcomes is required from large international epidemiological studies.
International multicenter study on ventilator-associated pneumonia

Research Hypothesis/Questions

- How is VAP diagnosed in clinical practice?
- What is the time relationship between clinical suspicion of VAP, diagnostic procedures and initiation of empirical antibiotic treatment?
- What is the degree of concordance with the new CDC definition of VAP?
- What percentage of VAP cases diagnosed clinically also fulfils criteria for ventilator-associated events (VAE)?
- What are the predictors (predictive factors) of VAP outcome?
- Are there any predictors (predictive factors) that could help in the early identification of VAP patients not responding appropriately to medical treatment (i.e. failure to resolve)?
- Are there any early predictors (predictive factors) to identify VAP recurrence?
International multicenter study on ventilator-associated pneumonia

Research Hypothesis/Questions

- What is the spectrum of isolated pathogens in VAP cases and what are their susceptibilities?
- Had these patients prior colonization with the same pathogen(s)?
- What is the prevalence of multi-drug resistant (MDR) pathogens of VAP?
- What is the empirical treatment of VAP in clinical practice?
- How is empirical antibiotic treatment modified (de-escalation, escalation, termination) in the setting of microbiological information?
- Is antibiotic dosing for VAP adequate?
- How inadequate dosing impact outcomes?
- What is the duration of treatment in clinical practise and does duration impact outcomes?
- What are the characteristics of VAP in specific sub-groups e.g. elderly, COPD patients, immunocompromised patients?
International multicenter study on ventilator-associated pneumonia

Research Outcomes

The outcome of the study will be improved understanding of the epidemiology of VAP, in particular, diagnostic parameters used, timelines for initiation of therapy and resolution and early predictors of clinical outcome.
International multicenter study on ventilator-associated pneumonia

Study inclusion criteria:

- Adult ICU patients (≥18 years old)
- Invasive mechanical ventilation for ≥48 hours
- Clinical diagnosis of VAP (main dataset)

- **VAP patients receiving palliative or supportive treatment only at the time of assessment for eligibility will be excluded from the main dataset, with limited details obtained to enable the calculation of VAP incidence.**
International multicenter study on ventilator-associated pneumonia

**Timeframe**

- Presentation of the study protocol (version 1) & study development, including appointment of steering committee, drafting of the case report form, will commence with the Working Group on Pneumonia Meeting at the European Society of Intensive Care Medicine 2013 Annual Congress.

- Finalisation of the case report form is expected to occur by February 2014.
- Identification of national coordinators and finalisation of the study protocol, investigator’s brochure and electronic Case Report Form will be completed by July 2014.
- Commencement of patient recruitment will occur from November 2014 to September 2015.
- Database closure, final query resolution and analysis will occur from September to December 2015.
- The first publication will be completed in early 2016.
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Future Projects Plans

- PK/PD of Antibiotics in Epithelial Lining Fluid (ELF) of ICU Patients with Pneumonia

- Hospital-acquired pneumonia in non-intubated patients
Future Projects Plans:
PK/PD of Antibiotics in Epithelial Lining Fluid (ELF) of ICU Patients with Pneumonia

• There is limited literature on the PK/PD of the antibiotics in the lungs and even more limited for the PK/PD in the infected lungs (pneumonia).

• A large, well designed international study, in line with DALI and SMARRT study, on the PK/PD of antibiotics in the ELF of ICU patients with pneumonia would give essential information on the relationship between blood levels and ELF antibiotic levels and if current dosing for pneumonia is adequate.

• The findings of such a study would lead:

   in better understanding of the correct antibiotic dosing in critically ill patients with pneumonia & maybe they could alter our current concepts of adequate dosing in pneumonia, especially for difficult to treat multi-drug resistant pathogens.

• A joint international, multicenter study on PK/PD in ELF of antibiotics administered in ICU patients with pneumonia (severe CAP, HAP, VAP) is planned with the collaboration of the University of Queensland, Australia.
Future Projects Plans:
**Hospital-acquired pneumonia in non-intubated patients**

- The hospital-acquired pneumonia that develops in non-intubated hospitalised wards’ patients that subsequently deteriorate and need ICU admission or that develops in non intubated ICU patients, is not well studied.

- EU-VAP/CAP Study has given some important information on the topic but was not specifically designed to look into the risk factors and predictors of outcome.

- A large, prospective observational multicentre study, specifically designed to examine risk factors, diagnosis, etiology, management and early predictors of outcome of non-intubated HAP would give very important evidence that could help in the improvement of the management and possibly to better outcomes of such patients.

- The possibility of a future study on non-intubated HAP will be discussed and the time frame will be set in the WG meeting.
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Collaborations

• **ESICM Working Group for Antimicrobial Use in the ICU:**
  - International prospective observational multicentre study on VAP
  - Joint study on antibiotics’ PK/PD in ELF in ICU patients with pneumonia

• **ESCMID Study Group on Infections in critically ill patients (ESGCIP):** CAPUCI II Study

• **WG on Pneumonia welcomes future collaboration with Clinical Trials Group**
WG on Pneumonia

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