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Quality of the aetiological diagnosis of ventilator-associated pneumonia in Spain in the opinion of intensive care specialists and microbiologists

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ABSTRACT

Introduction: Current guidelines for the microbiological diagnosis of ventilator-associated pneumonia (VAP) are imprecise. Based on data provided by intensive care specialists (ICS) and microbiologists, this study defines the clinical practices and microbiological techniques currently used for an aetiological diagnosis of VAP and pinpoints deficiencies.

Methods: Eighty hospitals in the national health network with intensive care and microbiology departments were sent two questionnaires, one for each department, in order to collect data on VAP diagnosis for the previous year.

Results: Out of the 80 hospitals, 35 (43.8%) hospitals participated. These included 673 ICU beds, 32,020 ICU admissions, 173,820 ICU days stay, and generated 27,048 lower respiratory tract specimens in the year. A third of the hospitals (35%) had a microbiology department available 24/7. Most samples (83%) were tracheal aspirates. Gram stain results were immediately reported in around half (47%) of the hospitals. Quantification was made in 75% of hospitals. Molecular techniques and direct susceptibility testing were performed in 12% and one institution, respectively. Mean turnaround time for a microbiological report was 1.7 (SD; 0.7), and 2.2 (SD; 0.6) days for a negative and positive result, respectively. Telephone/in-person information was offered by 65% of the hospitals. Most (89%) ICS considered microbiological information as very useful. No written procedures were available in half the ICUs.

Conclusions: Both ICS and microbiologists agreed that present guidelines for the diagnosis of VAP could be much improved, and that a new set of consensus guidelines is urgently required. A need for guidelines to be more effectively implemented was also identified in order to improve outcomes in patients with VAP.

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Calidad del diagnóstico etiológico de la neumonía asociada a ventilación mecánica en España según la opinión de intensivistas y microbiólogos

Palabras clave:
Neumonía asociada a ventilación mecánica, diagnóstico
Cuidados intensivos
Técnicas microbiológicas
Cuestionarios sanitarios

R E S U M E N

Introducción: Las guías para el diagnóstico microbiológico de la neumonía asociada a la ventilación mecánica (NAVM) son imprecisas. Este estudio describe la práctica clínica y las técnicas microbiológicas según la información proporcionada por intensivistas y microbiólogos de varias UCIs españolas, e identifica deficiencias y oportunidades de mejora.
Métodos: Se enviaron cuestionarios a 80 hospitales públicos españoles con servicios de cuidados intensivos y de microbiología, solicitando datos sobre el diagnóstico de la NAVM en el año anterior.
Resultados: Los 35 hospitales participantes (43,8%) abarcaron 673 camas de UCI con 32.020 admisiones y 173,820 estancias, y generaron 27.048 muestras del tracto respiratorio inferior. El 35% disponía de un servicio de microbiología 24/7. El 83% de las muestras fueron aspirados endotraqueales; el 47% de los Gram se informaron de inmediato y el 75% de las muestras se procesaron de manera semicuantitativa. Las técnicas moleculares y el antibiograma directo se realizaron en el 12% de los casos y en una institución, respectivamente. La respuesta media fue de 1,7 (DE 0,7) y 2,2 (SD 0,6) días para un cultivo negativo y uno positivo, respectivamente. La información directa estuvo disponible en el 65% de los hospitales. El 89% de los intensivistas consideraron muy útil la información microbiológica. En la mitad de la UCIs no había protocolos escritos de manejo de esta entidad.
Conclusiones: Intensivistas y microbiólogos coinciden en que las guías actuales para el diagnóstico de NAVM se podrían mejorar significativamente. También es necesario implementar las guías de manera más efectiva para mejorar la evolución de los pacientes.
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Introduction

Hospital-acquired pneumonia, particularly ventilator-associated pneumonia (VAP), is one of the leading causes of infection and death in the healthcare setting.[1] VAP is associated with prolonged hospitalization and increased health care costs.[2] The incorrect or delayed treatment of VAP in the first few hours gives rise to a worse prognosis.[3] VAP should thus be considered a microbiological emergency, yet in many institutions a microbiological diagnosis of VAP is not available around the clock. Information from the microbiology department serves to shorten the period of broad-spectrum empirical treatment and thus ensure a more restricted use of antimicrobial agents.[4]

Current VAP guidelines are imprecise about many issues related to its microbiological diagnosis[5–8] such as the most suitable type of specimen, sample preservation, transport to the laboratory, attention given to these samples or results interpretation.

In addition, there is little information on present microbiological practices and their relative capacity to diagnose VAP.[9,10] Individual studies suggest that practice often differs very much from literature recommendations.

The present study surveys several issues regarding the microbiological diagnosis of VAP in ICUs in Spanish hospitals from the perspective of both intensivists and microbiologists. The data collected in questionnaires were used to better define the approach taken in clinical practice and to pinpoint deficiencies that will help improve current guidelines on this important topic.

Methods

Study design

In this multicenter, multidisciplinary survey, 80 hospitals in the national health network with intensive care and microbiology departments were invited to participate via At each center accepting the invitation, intensivists and microbiologists completed a questionnaire regarding their standard approach to the management of patients with VAP.

Data collected

Participating clinicians were asked to report data collected during the previous year about their respective hospitals and units, including hospital size, number of patients admitted, and other questions (see Tables 1–4).

One questionnaire was addressed to microbiologists (Tables 1 and 2) and another to intensivists (Tables 3–4). Some questions were common to both questionnaires to separately assess the opinions of both on the same issue.

Microbiologists were asked about the size, structure and activity of their hospital and department, including personnel. Data were compiled regarding respiratory samples obtained from critically ill patients such as number, type and processing of these samples. Information was also obtained on turnaround times for rapid and standard diagnostic tests, guidelines for the interpretation of microbiological results, preparation of epidemiological records, and present recommendations for VAP diagnosis.

Intensivists answered questions about the characteristics of their intensive care units (ICUs) and their protocols for VAP diagnosis (sample collection, storage and delivery). They were also asked about turnaround times for rapid and standard diagnostic tests, guidelines for the interpretation of microbiological results, reception of epidemiological records from the Microbiology Department, and present recommendations for VAP diagnosis.

Finally both microbiologists and interventionists were asked on their opinion about the need for a consensus approach to the microbiological diagnosis of VAP.

A web site (http://denevem.com) was designed with the questionnaires available for electronic completion. Access to the web site was restricted to participating members by means of a personal username and password.

Ethical issues

No individual patient data were collected. The study protocol was approved by our institution's review board. The need for informed consent was waived.

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