Revista Clínica Española

www.elsevier.es/rce

ORIGINAL ARTICLE

Differential characteristics of bacteraemias according to age in a community hospital☆

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Abstract

Objective: To describe the characteristics of bacteraemias, according to age, in a community hospital.

Material and method: A prospective study of bacteraemias was conducted in 2011. The patients were classified into 3 age groups: younger than 65 years, 65–79, and 80 or older. The study collected variables on the patients and episodes.

Results: The study analyzed 233 bacteraemias in 227 patients (23.8% in those younger than 65 years; 38.3% in the 65–79 age group; and 37.9% in the 80 years or older group). The most common underlying disease in all the groups was diabetes mellitus. In the most elderly patients, the Charlson index was highest, there were a lower proportion of exogenous factors, and almost 25% were severely dependent (Barthel index <20). *Escherichia coli* was the most common germ, and the main focus was urological. The patients aged 80 years or older had predominantly healthcare-associated infections, less severe symptoms (sepsis) (66.3%) and higher mortality (29.1%) compared with the younger patients.

Conclusions: The very elderly patients with bacteraemia presented fewer exogenous factors, greater comorbidity and a poorer functional situation. The most common focus was urological and the origin was healthcare related. Despite their less severe clinical presentation, these patients' mortality was greater, and their degree of dependence was a highly relevant independent risk factor.

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PALABRAS CLAVE
Bacteriemia;
Evaluación de la discapacidad;
Edad avanzada;
Índice de Barthel;
Índice de Charlson

Características diferenciales en las bacteriemias según la edad en un hospital comunitario

Resumen
Objetivo: Describir las características de las bacteriemias, según la edad, en un hospital comunitario.

Material y método: Estudio prospectivo de las bacteriemias en el año 2011. Los pacientes se clasificaron en 3 grupos de edad: menos de 65, de 65 a 79 y 80 o más años. Se recogieron variables de los pacientes y de los episodios.

Resultados: Se analizaron 233 bacteriemias en 227 pacientes (23,8% en < 65; 38,3% entre 65 y 79; y 37,9% en ≥ 80 años). La enfermedad de base más frecuente en todos los grupos fue la diabetes mellitus. En los pacientes muy ancianos el índice de Charlson fue mayor, hubo una menor proporción de factores exógenos y casi un 25% eran dependientes graves (índice de Barthel < 20). *Escherichia coli* fue el germen más frecuente y el foco principal fue el urológico. En los pacientes ≥ 80 años predominó el origen de la infección asociado a cuidados sanitarios, la expresividad clínica menos grave (sepsis) (66,3%) y la mortalidad más elevada (29,1%), respecto a los de menor edad.

Conclusiones: Los pacientes muy ancianos con bacteriemia presentaron menos factores exógenos, más comorbilidad y una situación funcional peor; el foco más frecuente fue el urológico y el origen el asociado a cuidados sanitarios. A pesar de que su presentación clínica fue menos grave, su mortalidad fue superior, siendo el grado de dependencia una variable de riesgo independiente muy relevante.

Background

A profound change in the epidemiology, etiology and clinical characteristics of bacteremias has occurred in recent decades, and their incidence rate has been increasing by 8–9% annually.[1] This change has been influenced by the adoption of more invasive diagnostic and therapeutic measures and by patients who are more susceptible to the infections. In Spain, the proportion of individuals older than 80 years is high and growing.[2] Medical practitioners must therefore make diagnosis-therapeutic decisions that affect increasingly older and more dependent patients. Bacteremia is no exception and has a number of singular characteristics in elderly patients.[3,4]

The overall mortality of bacteremia varies between 16% and 40%.[1,5] The prognosis depends on variables such as the etiology, location of acquisition, patient characteristics, initial clinical severity, focus of origin and the precocity and appropriateness of the antimicrobial treatment. Furthermore, mortality is related to comorbidity, as measured with the Charlson index[6]; however, the relationship between mortality and the patient's functional state has been rarely assessed with validated scales such as the Barthel index.[7] Studies that have performed this assessment have demonstrated a relationship between mortality by bacteremia and the poorer functional state of the patient.[8] Clinical severity follows the defining international criteria of sepsis, severe sepsis and septic shock.[9]

The main objective of this study was to determine the differential characteristics of bacteremias that required admission to our hospital according to patient age.

Understanding these epidemiological, clinical and microbiological characteristics can help provide information that could result in better care and optimized therapy. The study hypothesis was that functional status (measured with the Barthel index) is a relevant prognostic factor that can also influence the decision making by medical practitioners.

Method

Design and setting

An epidemiological, observational, descriptive prospective study was conducted of bacteremia cases in adults (older than 14 years) recorded during 2011 at Hospital Royo Villanova of Zaragoza, a second-level general hospital with 235 beds for acute care, 10 beds for intensive care and no pediatric, obstetric or gynecology services. After determining the positivity of the blood cultures, the physicians performed the clinical assessment and assessed the need for counseling on a possible change in the empiric treatment or treating the infectious focus. We excluded bacteremias from patients transferred to other centers or discharged from the emergency department.

Variables collected

We collected the following variables: sex, age (divided into 3 groups: younger than 65 years, between 65 and 79 years and 80 years or older), previous Barthel index, chronic underlying diseases, acquired immune deficiency syndrome or other