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Early mortality predictors in very elderly patients with Gram-negative bacilli bacteraemia

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Background: The increase in global life expectancy has caused a progressive aging of the population. It has also been demonstrated that octogenarians have a higher risk than younger population of bacteremia, severe sepsis and therefore, mortality. Some of the mortality risk factors in general population such as associated comorbidities and delayed diagnosis and treatment have been poorly evaluated in older patients. On the other hand, gram-negative bacilli (GNB) are the most common cause of both nosocomial and community-acquired bacteremia and due to a higher rate of invasive procedures (such as urinary catheterization) and underlying disease this incidence is even greater in this age group. The aim of our study was to determine and to evaluate the general characteristics, prognosis and mortality risk-factors in a cohort of very elderly patients with bacteremia due to Gram-negative bacilli.

Material/methods: This study included all patients ≥80 years-old with GNB bacteremia collected and evaluated prospectively and consecutively in the University Hospital of Vigo between October 1, 2015 and October 1, 2016. Demographic variables, associated comorbidities, presence of indwelling hardware, source of bacteremia, severity of infection, previous and current empirical antibiotic treatments received as well as 14- and 30-day mortality of all patients were evaluated. Statistical analysis of data was performed with SPSS v22.0.

Results: A total of 106 patients were included. Fifty one per cent were male with a mean age of 86 years (SD 4.2). Acquisition was community in 54.7% of cases, followed by healthcare-related in 32% and nosocomial in 13.2% of cases. Median Charlson Score was 2 (IQR 0-4). Most frequent associated comorbidities were dementia (34%), neoplasia (26%) and diabetes mellitus (25%). Eleven per cent were carriers of urinary catheter (12/106) and half of patients had received antibiotics in prior 6 months. Septic shock at onset of bacteremia was identified in 7.5% of patients. Regarding the etiology the most common isolated pathogen was *Escherichia coli* (67%) followed by *Klebsiella pneumoniae* (3.8%) and *Serratia marcescens* (3.8%). In 16 patients (15%) an extended-spectrum β -lactamase producing GNB was isolated. Most frequent sources of bacteremia were urinary (60%), biliary (12.3%) and respiratory tract (8.5%). Empirical treatment was ceftriaxone in 22% and amoxicillin-clavulanate in 20% being inadequate in 24% of cases. In terms of outcome 14-day and 30-day mortality was 19% and 23.6% respectively. Multivariate analysis by logistic regression showed as 14-day mortality risk factor septic shock (OR 9.8 [95%CI 1.89-50.85]), inadequate empirical treatment (OR 3.19 [95%CI 1.002-10.20]) and non-urinary source (OR 3.64 [95%CI 1.16-11.40]). 30-day mortality was only associated with septic shock at presentation (OR 6.9 [95%CI 1.40-33.87]).

Conclusions: Inadequate empirical treatment, non-urinary source of bacteremia and septic shock were independently associated with early mortality in a very elderly patients cohort with GNB bacteremia.