INTRODUCTION

During last years, the use of peripheral venous catheters (PVCs) has increased outside the intensive care unit, with a consequent increase of the peripheral venous catheter-associated bloodstream infections (PVC-BSI).

In Spain, rates up to 0.18 episodes of PVC-BSI/1,000 patient-day have been described in patients admitted to teaching institutions.

Internal medicine departments (IMD) are one of the main wards in which PVC are widely used. However, data regarding the incidence of PVC-BSI and its characteristics in IMD are scarce.

PURPOSE

To assess the incidence of PVC-BSI episodes detected in IMD in Spain.

METHODS

This was a multi-center prospective observational cohort study performed in 14 Spanish IMD from June 2015 to June 2016.

We included adult patients (>18 years) admitted to IMD with at least one PVC and significant bloodstream infection.

PVC-BSI. Presence of positive peripheral blood cultures from a patient with a PVC and clinical manifestations of infection (fever, chills, and/or hypotension) and no apparent source of infection other than the PVC.

RESULTS

General data from the 14 IMDs are detailed in Figure 1.

We collected a total of 70 episodes of PVC-BSI which represented an overall rate of 1.64 episodes/1,000 IMD admissions (estimation of 0.28 episodes/1,000 catheter days).

Patients’ and catheters’ characteristics are detailed in the table.

Only 37 (52.6%) of the withdrawn PVC tips were sent for culture and 26 of them (70.3%) corresponded to microbiologically confirmed PVC-BSI episodes.

It was estimated that 25.7% of the PVCs in place were no longer necessary at the inclusion day.

Staphylococcus aureus was the most frequently isolated microorganism (41.7%) (figure 2).

Out of the 70 episodes, phlebitis was clinically evident in 44 (62.9%) episodes. A multivariate analysis showed phlebitis as an independent predictor of catheter insertion in emergency departments (OR=5.44, 95% CI, 1.54-19.30; p=0.009).

CONCLUSIONS

Our study shows that PVCs have a significant risk for bacteremia and that PVC-BSI has important severe consequences.

Clinically evident phlebitis is not always present among patients with bacteremia in this population.

PVCs inserted in emergency departments should be particularly surveyed.

Physicians should be encouraged to send the tip for culture to confirm the PVC-BSI episode.

Educational and interventional preventive measures must be implemented both in IMD and emergency departments.