

Peripherally inserted central catheters versus centrally inserted central catheters: a retrospective observational study.

Results

A total of 1190 CICC's placed during 11042 catheter-days and 858 PICC's placed during 8988 catheter-days were installed and analyzed. The mean catheter-days prior to infection was 17 days for CVC and 20 days for PICC. Among the CICC's, a total of 26 (2.1%) CRBSI infections were identified, while 28 (3.2%) PICC's had CRBSI ($p = 0.036$). The incidence rate of CRBSI per 1000 catheter-days was 2.35 for the CICC group and 3.26 for the PICC group ($p < 0.002$). The rate of CRBSI due to multidrug-resistant organisms (XDR) is 0.25 in the CICC group and 0.69 in the PICC group ($p < 0.001$). Within the CRBSI-CICC group, the most common microorganism detected was Staphylococcus aureus (19.2%) and in the CRBSI-PICC group, the predominant microorganism was Escherichia Coli XDR (14.2%).

Authors: Gilberto Hernández Córdova¹, Valverde Ramos Lirio², Samanta Sánchez Ramírez³.
1. Intravascular Infusion Therapy Clinic - Dr. Manuel Gea González General Hospital. gilhercor@gmail.com, 5583193006. Mexico City, Mexico.
2. Department of Clinical Epidemiology- Dr. Manuel Gea González General Hospital. liriovalverde1@gmail.com, 5571712311. Mexico City, Mexico.
3. Intravascular Infusion Therapy Clinic - Hospital General Dr. Manuel Gea González. samy8arm@gmail.com, 5611691496. Mexico City, Mexico.

Introduction:

The use of intravascular catheters allows rapid and safe access to the bloodstream, however, infection related to central catheters is one of the main complications of their use.

Objective:

To compare the rates of CICC- and PICC-related CRBSI developed in a second-level hospital and to evaluate the microbiological distribution of CRBSI.

A descriptive, observational, cross-sectional and retrolective analysis was carried out, a total of 2,048 patients over 18 years of age who were placed with a PICC catheter or a CICC were included, the study was carried out in a second-level hospital in the period January 2023 and June 2024. The type of microorganism that grew in blood cultures, hospital day at the time of infection was evaluated according to the dates of catheter installation and detection of microorganisms in blood cultures.

Methods:

Características clínicas de la población de estudio			
Variable de estudio	PICC	CVC	
Sexo	Masculino 53%	Masculino 52%	
Edad, media	55	54	
Día hospitalario al momento de la infección, media	20	17	
Tasa de ITS-AAS por 1,000 días catéter	3,26	2,35	
Número de catéter	858	1190	
Número de días catéter	8,988	11,042	
CRBSI MDR	0.58	0.58	($p < 0,002$)
CRBSI XDR	0.69	0.25	($p < 0,001$)

Table 1. Clinical characteristics of the study population.

Conclusions:

The findings indicate that the length of time a CICC/PICC is maintained continues to be a considerable risk for CRBSI infections in hospitalized patients, despite the implementation of prevention protocols.

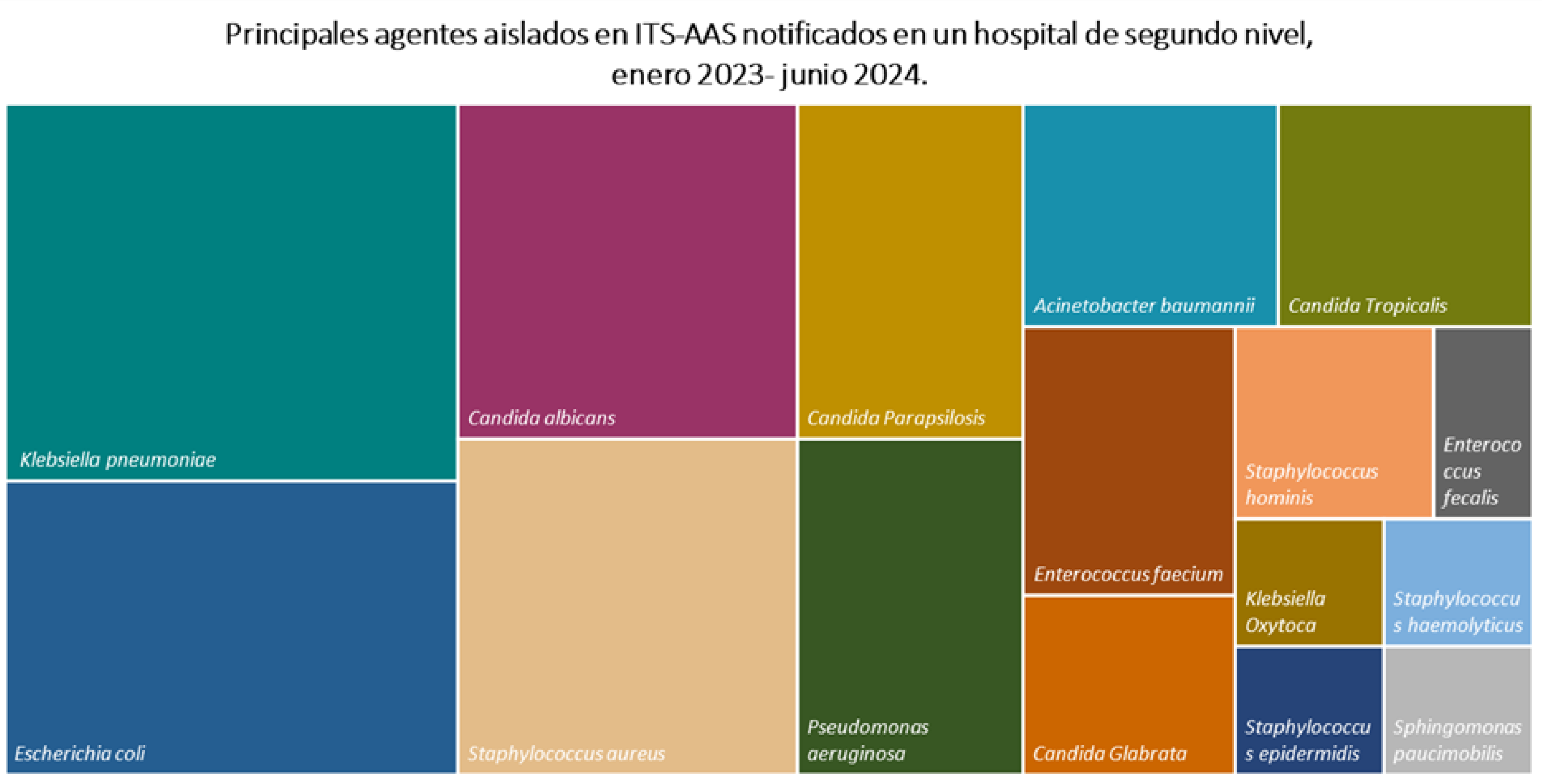


Figure 1. Main agents isolated in STI-AAS reported in a second-level hospital, January 2023-June 2024.

- Arvaniti K, Lathyris D, Clouva-Molyvdas P, Haidich AB, Mouloudi E, Synnefaki E, et al. Comparison of Oligon catheters and chlorhexidine-impregnated sponges with standard multilumen central venous catheters for prevention of associated colonization and infections in intensive care unit patients: a multicenter, randomized, controlled study. Crit Care Med. 2012; 40(2):420–9.
- Gómez C; Miguel T. Peripherally Inserted Central Venous Catheter (PICC) with multiple lumens: a good choice for pressure monitoring and treatment. Nursing in Cardiology 2009; (47):99-103
- Grosklags, A. The IPCC book, A Guide for Clinicians. Mexico: CDMX. ed Bard Access Systems. 2015.
- He Y, Zhao H, Wei Y, Gan X, Ling Y, Ying Y. Retrospective analysis of microbial colonization patterns in central venous catheters, 2013–2017. J Healthc Eng. 2019;2019:8632701. <https://doi.org/10.1155/2019/8632701>.