Catheter-related bacteremia: when one factor alters the product

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Introduction:

Our institution is a nonprofit healthcare organization specialized in adults with acute pathologies. With a total of 70 beds, 16 are at the ICU, which is a polyvalent unit caring for medical, surgical and coronary patients.

In July 2012 our institution incorporated a nurse specialized in infection control and initiated an infection control program including active

surveillance of risk factors at the ICU. Ours being as a neurointensivist institution, femoral insertion is the most frequently used site for central venous catheters (CVC) since 1994; location was firstly chosen to avoid thoracic veins and later on it was done routinely.

Objective:

To describe our experience in the impact of active surveillance to identify the drivers of an increase in CRB.

Materials and Methods:

Prospective, descriptive and comparative analysis of patients hospitalized at the ICU and requiring CVC since July 2012 through July 2017. Active surveillance followed the criteria for Catheter-related bacteremia (CRB) by the national surveillance system: VIHDA

Results: A total of 23,262 patient/ days were included in the study period; 953 catheters were inserted (10,633 catheter/ days), of which 373 were femoral, 270 subclavian and 310 yugular insertions. Catheter duration ranged between 2 and 32 days (the latter being a yugular insertion). The longest duration of a femorally inserted catheter was 29 days (mean 10 days). CRB rate in the period July 2012-June 2014 was 1 ‰, the last episode occurred in Feb 2014. On June 2014, two CRB were registered, followed by three other episodes in July. The only change observed in the period was the shift from flexible plastic packed parenteral solutions to those packed in rigid plastic. The change was due to a shortage in supply. When informed about these findings, the Committee recommended to purchase flexible plastic as soon as available. As from product availability, no further episodes were registered until February 2015, when flexible plastic packages were again not available. The cumulative CRB rate was not zero due to the small days/catheter rate. Only one of the CRB occurred at a femoral insertion; most CRBs were yugular

CRB JUL12-JUL17 (anual)
Critical Care Unit

Number of episodes
2014

Discussion:

International guidelines recommend avoiding femoral insertion to prevent CRB. Our institution does not follow these guidelines; however, the site of insertion has not been the factor responsible of an increase in the CRB rate, probably related to failing to use integral closed circuits.

Conclusion:

Active surveillance and an effective program are key to timely detect and modify the factors leading to an increase in CRB. Although our institution does not follow the guidelines regarding site of catheter insertion, we have been able to show rate 0. Though not a study goal, we have also shown that femoral insertion is a safe alternative for central venous catheters when following appropriate aseptic measures at insertion and adequate nursing care.