

EDITORIAL

Prevention of catheter-related infections in pediatric patients. A challenge to overcome

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Infections related to the installation and retention of intravenous catheters (IVC) have become one of the main problems faced by hospitals in Mexico and worldwide. This has meant that the Ministry of Health, within the National Network of SICALIDAD (Integrated System of Quality in Health), has recently launched the “zero bacteremia” campaign whose main objective is to reduce morbidity and mortality associated with nosocomial infections related to IVCs.

Although the frequency of infections associated with IVC varies depending on the hospital and the area analyzed, it is known that placement of a catheter carries a number of risk factors that may favor first colonization and then infection, either local or systemic. The incidence of bloodstream infections varies depending on various aspects: type of catheter, frequency of manipulation, patient-related factors (underlying disease and severity), etc. The sickest patients are at increased risk because they

are generally managed in ICUs where the IVC is required to remain for a long time. Catheters are handled several times a day to administer fluids, drugs, blood or derivatives and for hemodynamic monitoring and to obtain blood samples for laboratory tests. Sometimes catheters are placed in an emergency situation and the recommended aseptic techniques are not followed. A low nurse/patient ratio and the limited training of a nurse in intensive care increase the risk of infection. This illustrates that the causes of an IVC-related infection are multifactorial.¹

In this issue of *Boletín Médico del Hospital Infantil de México*, Rivas-Ruiz et al. address a very specific aspect of preventing infections associated with IVC, which is the use of a chlorhexidine-impregnated patch placed at the site of catheter insertion.² Using a meta-analysis, it is suggested that the patch reduces the colonization of central venous catheters compared to a conventional dressing but found no difference in the reduction of bacteremia. Even though methodologically this study meets the criteria of a meta-analysis, there were only two studies included for the final analysis with numerical differences between each of them and, particularly, differences in the age groups. Because of this, the conclusions should be interpreted cautiously.

In the “Guide 2011 for the Prevention of Catheter-related Infections”, the Centers for Disease Control and Prevention in Atlanta, Georgia only recommended the use of chlorhexidine-impregnated patches for catheters of short duration in patients >2 months old, in hospital units where systemic infections have not declined despite having implemented all the measures of education, with adherence to basic prevention measures and appropriate use of chlorhexidine antisepsis of the skin.³

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Efforts to reduce risks to patients and thereby impact on reducing costs associated with nosocomial infections associated with IVC require multidisciplinary involvement. A great responsibility rests with the medical staff in deciding which patients require a catheter as well as the decision of how long the catheter must remain in place. The following responsibility falls on the person who places the catheter as he/she must meet the strict criteria of asepsis and antisepsis. After catheter placement, it is the responsibility of all staff involved to maintain the catheter, monitor strict adherence to the precautions for opening and manipulation for the administration of drugs, solutions, etc. and comply with all necessary medications in a timely manner. In parallel, the personnel involved in the detection and prevention of nosocomial infections must maintain a permanent monitoring system to identify and correct the deviations detected in the management of the IVC.

Actions to influence the reduction of infections associated with intravascular catheters can be summarized as follows:

- 1) Continually educate and train core staff of hospitals and staff in training (residents and nurses) with respect to indications, placement and management of the IVC. Train personnel for early detection of risks of infection. Apply management guidelines and monitor their compliance. Maintain adequate competency in those who place catheters and an optimal technical level in the nurses assigned, especially those working in the ICUs.
- 2) Have well-defined criteria regarding selection of the type of catheter according to the patient's require-

ments and the time required. Decide anatomic sites that promote lower risk of infection.

- 3) Comply with best practices of asepsis and antisepsis and maintain proper hand hygiene during all steps required by this simple and high-impact procedure.
- 4) Comply with precautions that allow for maximum sterile barriers.

Although there are many recommendations to prevent colonization and infection associated with local or systemic IVCs, there are still many places where recommendations for success cannot be provided and where even the latest guidelines consider these unresolved issues or issues to be resolved. Therefore, it is important to continue research that may add to the list of items for appropriate control of nosocomial infections.

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