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LETTER TO THE EDITOR

Intervention to reduce catheter-related bloodstream infections in an intensive care unit at a regional hospital in southern Taiwan

To the Editor,

Recently Wu et al¹ reported an intervention to reduce the incidence of catheter-related bloodstream infections (CRBSIs) in an intensive care unit (ICU) of a medical center in central Taiwan. The major intervention was the standardization of the process of central venous catheter (CVC) implantation, including hand hygiene and maximal sterile barrier precautions in the study. However, we wondered if this successful experience could be duplicated in all hospitals in Taiwan, especially for a regional hospital with limited resources. Therefore, we present our experience of decreasing CRBSI in a medical ICU in a regional hospital in southern Taiwan.

The medical ICU has 16 beds, and most of the admissions were attributed to shock, acute respiratory failure, cancer, and sepsis. From June 2009 to December 2009, the median length of ICU stay was 5.6 days, and the APACHE (Acute Physiology and Chronic Health Evaluation) II scores of all patients ranged from 18 to 30. The incidence of CRBSI was 4.5 per 1000 catheter-days in one medical ICU. However, the 50th percentiles of mean CRBSI rate in medical ICUs was 3.7 per 1000 catheter-days in regional hospitals based on the annual report of the Taiwan Nosocomial Infections Surveillance System in 2009.² Therefore, we reviewed the routine process of CVC implantation and further set up a central line bundle. CRBSI was identified according to the Centers for Disease Control/National Healthcare Safety Network standard definitions.³ After education of the ICU staff (including attending physicians, respiratory therapists, and nurse practitioners) was completed, the standardized process of CVC implementation commenced in March 2010.

Prior to the intervention, we noted that compliance of the standard process of CVC implementation was less

than 80% during the 40 checkups. Most of them were inadequate barrier precautions and inappropriate hand hygiene. Thus, we also incorporated the monitoring of the “Five Moments for Hand Hygiene,” which is recommended by the World Health Organization.⁴ During the period of intervention (from June 2010 to December 2010), the mean rate of CRBSIs declined to 3.45 per 1000 catheter-days. Three months after the intervention, the rate of CRBSIs further declined to 2.16 per 1000 catheter-days.

In the present work, we have one major significant finding. As in Wu et al’s study,¹ where a decreasing incidence of CRBSIs after the introduction of the standardized process of CVC implantation was noted, we have demonstrated that bundle-care intervention can effectively prevent CRBSIs in a regional hospital. Therefore, it should be implemented in ICUs to prevent CRBSIs.

References

1. Wu PP, Liu CE, Chang CY, Huang HC, Syu SS, Wang CH, et al. Decreasing catheter-related bloodstream infections in the intensive care unit: interventions in a medical center in central Taiwan. *J Microbiol Immunol Infect* 2012;**45**:370–6.
2. Centers for Disease Control, R.O.C. (Taiwan). *Annual report of nosocomial infections*. <http://www.cdc.gov.tw/public/Attachment/11191142971.pdf>; 2009 [accessed 19.01.11; Article in Chinese].
3. Horan TC, Andrus M, Dudeck MA. CDC/NHSN surveillance definition of health care-associated infection and criteria for specific types of infections in the acute care setting. *Am J Infect Control* 2008;**36**:309–32.
4. Sax H, Allegranzi B, Chraïti MN, Craiti MN, Boyce J, Larson E, et al. The World Health Organization hand hygiene observation method. *Am J Infect Control* 2009;**37**:827–34.

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