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Device Associated Infection Rates, Extra Length of Stay and Mortality in a Hospital of Cuba. Findings of the International Nosocomial Infection Control Consortium (INICC)

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Objectives: To determine the rates and consequences of the device-associated infections (DAI) in one intensive care unit (ICU) of a hospital member of the INICC in Cuba.

Methods: An open label, prospective cohort, active DAI surveillance study was conducted on adult patients admitted to one tertiary-care ICU of Cuba.

The protocol, forms, and methodology implemented were developed by the INICC. The data collection was performed in the participating ICU. Data uploading and data analysis were conducted at INICC headquarters on proprietary software.

Rates of DAI were recorded through applying the definitions provided by the CDC NHSN system.

We analyzed the DAI (mechanical ventilator-associated pneumonia (VAP), central line associated bloodstream infection (CLABSI), and catheter-associated urinary tract infection (CAUTI)) rates, microorganism profile, bacterial resistance, extra length of stay (ELOS) and extra mortality.

Results: From 10/06 to 5/08, we enrolled 351 patients, representing 2,184 bed days. The overall DAI rate was 10.0% and 16.03 per 1000 bed days. The VAP rate was 19.8 per 1000 device days, CLABSI rate was 4.33 per 1000 CL days, and CAUTI rate was 5.53 per 1000 catheter days.

Overall 35.7% of all DAIs were caused by *Escherichia Coli* –100% were resistant to third-generation cephalosporin-; 21.4% were caused by *Acinetobacter sp*; 28.6% by *Pseudomonas sp* -100% were resistant to ceftriaxone and ceftazidime- and 14.3% by *Coagulasa negative staphylococci*.

LOS of patients without DAI was 5.4 days; the LOS of patients with CLABSI was 10.0 days (RR, 1.85; 95% CI, 1.19-2.87; P, 0.0055), representing 4.6 extra days; the LOS of patients with VAP was 14.6 days (RR, 2.69; 95% CI, 2.35-3.08; P, 0.0001), representing 9.2 extra days; and the LOS of patients with CAUTI 16.3 was days (RR, 3.02; 95% CI, 2.46-3.70; P, 0.0001), representing 10.9 extra days.

A total of 128 out of 320 (40%) patients without DAI died; 1 out of 2 patients (50%) with CVC-BSI died, the extra mortality of CVC-BSI being 10.0%, (RR, 1.25 ; 95% CI, 0.17 – 8.94; P, 0.8237); 14 out of 16 patients with VAP died (87.5%), the extra mortality being 48% (RR, 2.19; 95% CI, 1.26 - 3.80, P = 0.0043); 3 out of 6 patients with CAUTI died (50%), the extra mortality being 10% (RR, 1.25, 95% CI, 0.40 - 3.93, P = 0.7018).

Conclusions: This study identified that VAP rates were high; CLABSI and CAUTI rates were similar to international standards; all DAIs increase significantly the LOS; and VAP increases significantly the mortality.