

Infectious Diseases

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Antibiotic-impregnated central venous catheters for the prevention of catheter-related bloodstream infection in children: A meta-analysis

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Background: Use of central venous catheters (CVCs) ensures stable access in critically ill patients but is associated with increased infection rates. CVC with antimicrobials has been recommended for infection reduction in adults. A review of antibiotic-impregnated CVCs' usefulness in children is needed.

Aim: Aim of this study is to determine the effectiveness of antibiotic-impregnated CVCs in reducing infection in children.

Search Methods: Extensive search of MEDLINE, Cochrane Database of Systematic Reviews and Cochrane Register of Controlled Trials, Clinicaltrials.gov and Google scholar was done for trials published until June 2016. Reference lists from retrieved journals were checked for relevant articles.

Selection Criteria: RCTs evaluating antibiotic-impregnated was compared with standard CVCs for reducing infection in children.

Data Collection and Analysis: Two authors assessed trial quality and extracted data. Statistical analysis was done using Review Manager with fixed or random effects model. Outcomes were: Bloodstream infection, hypersensitivity, thrombosis, mortality, site infection, length of ICU and hospital stay. Dichotomous data were presented as risk ratios (RR), continuous data as mean differences with 95% confidence intervals (CIs).

Results: Two low quality trials (n=1773) were analyzed showing non-significant reduction of bloodstream infection in the antibiotic-impregnated group compared to standard catheters (RR 0.49; 95% CI 0.23-1.02, I²=0%) with no increased risk of thrombosis (RR 1.04 95% CI 0.84-1.28, I²=0%). No statistical difference was seen in the duration of ICU and hospital stay.

Conclusions: The use of antibiotic-impregnated CVCs cannot be recommended at this time. Decision of its use will depend on the clinical judgment after consideration of the costs and benefits. More RCTs are needed to reinforce the evidence.

Biography

Vaneza Leah Espino is a pediatrician who recently completed her 3-year residency training at the Philippine General Hospital (PGH), one of the premier training institutions in the Philippines, and plans to pursue further training in Pediatric Intensive Care. The PGH caters to a large volume of patients from all parts of the country with illnesses ranging from the most common to the rarest and complicated. This challenge is often faced by being a resourceful, disciplined and efficient health care provider. Her training has molded her to be in a continuous pursuit to provide premium health care for every Filipino child despite limitations in resources. The review aims to provide evidence to decrease infection rates in the critically ill and to provide a spring board towards the development of similar trials for the pediatric population that may offer recommendations to be implemented in tertiary hospitals of developing countries.

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