Lock Stock and Dual Smoking Antibiotics: Successful CVC Line Salvage using novel combination Antibiotic Lock Therapy in Haemodialysis

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Poster example

Background and Rationale

Catheter-related bacteremia (CRB), associated with a microbial biofilm, is a serious complication in central venous catheter (CVC) use in haemodialysis patients. The removal of CVC can be expensive and associated with significant morbidity and mortality. Despite CRB’s adverse health implications and economic burden, research into use of antibiotic lock therapy (ALT) in this setting remains unsatisfactory. We describe two examples of ALT both using dual antibiotics for catheter salvage. One particular ALT’s originality prompted its selection for poster presentation at Antimicrobials 2014.

Case 2: Method

This patient had developed Acinetobacter xylosidans CRB which already proved resistant to GEN but susceptible to piperacillin-tazobactam (TAZ). As per unit protocol a TAZ ALT was commenced. Three months later the Acinetobacter xylosidans CRB resumed, with again susceptibility to TAZ, but also susceptible to trimethoprim-sulfamethoxazole (TMP-SMX). Poor penetration of the biofilm by TAZ was suspected. Removal of the catheter of the catheter was a potential option; however a switch to an innovative TMP-SMX antibiotic lock and concurrent TMP-SMX therapy was instilled. An added benefit of TMP-SMX is its relatively low cost and its minimal contribution to antimicrobial resistance spread.

Case 2: Results

Ongoing treatment with this novel regime resulted in successful CRB treatment and salvage of the CVC.

Implications

- The development of these two antibiotic locks for dialysis patients provide additional options for salvaging catheters.
- In the case of the TSMX locks, there is great potential as a ALT candidate due to its low selection pressure for microorganisms.
- There is also potential for these antibiotic lock to be applied to other health specialties such as palliative care and total parental nutrition which rely on CVC usage.

Key Message

This case highlights the need for more research into the antibiotic lock options for contaminated CVC’s, while also keeping in mind that these antibiotic options must aim to prevent microbial resistance spread.

Case Studies

Two haemodialysis patients, both on three times a week dialysis, were receiving a gentamicin (GEN) lock as per unit protocol. However, these patients developed CRB and the decision was made to salvage the CVC’s using ALT in both cases.

Case 1: Method

This patient developed Citrobacter freundii CRB and infectious disease (ID) recommended amikacin (AMK) as antibiotic lock salvage therapy.

A few weeks later, he developed another CRB due to Coagulase-negative staphylococci sensitive to vancomycin (VAN) and a dual (AMK+VAN) antibiotic lock was suggested. Although evidence supported compatibility of the antibiotics in lock solution, there were no studies to confirm the combination’s efficacy in ALT. Since microbial antibiotic susceptibility confirmed this as a logical ALT therapy, the combination antibiotic lock was administered.

Case 1: Results

The CVC remained successfully in situ for another couple of weeks, but the decision to remove the CVC was eventually made in the light of suitable native anterovenous access.