Daily Bathing with 2% CHG Washcloths Leads to Almost Total Elimination of MRSA Bacteraemia

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Introduction
Nosocomial infections affect up to 30% of patients in intensive care units (ICU) and are frequently associated with invasive devices. Management of patients with a central venous catheter (CVC) is a major factor in the attributable risks of morbidity and mortality due to catheter-related bloodstream infections (BSIs). The attributable risks of catheter-related bloodstream infections in the ICU are in situ. The attributable mortality due to BSI in the ICU has been reported to be as high as 24.8% – a rate 3-fold greater than that in patients without BSI.

CVC insertion and skin colonization are key independent risk factors for methicillin-resistant Staphylococcus aureus (MRSA) bacteraemia. Tackling CVC care and effectively implementing interventions to reduce skin colonization should therefore reduce the burden of nosocomial infections due to MRSA.

We report our single-centre tertiary care experience following the addition of daily 2% Triclosan (Aqueasept, Medlock Medical®) bodywashes, followed by then laterly 2% chlorhexidine gluconate (CHG) washcloths (Sage Products Inc®) to existing infection control policies and patient safety interventions, on the nosocomial MRSA bacteraemia and acquisition rates.

Hypothesis
A sustained reduction in MRSA bacteraemia and acquisition can be achieved with targeted interventions such as CVC care bundles, good infection control strategy and daily antiseptic bodywashes. It is uncertain which of these interventions is most effective.

Methods
Guy’s and St Thomas’ NHS Foundation Trust (GSTT) is a tertiary level teaching hospital in central London. This study focuses on the 30-bed mixed medical (70%) and emergency surgical (30%) ICU, which admits approximately 1,100-1,200 patients per year. Of these about 90% are mechanically ventilated, and typically 15-20% receive renal replacement therapy. The mean age is approximately 60 years, the mean length of stay is 9-10 days. The ICU mortality has steadily reduced from “30% in 2002, to “21% in 2010.

Controlling MRSA has been a national target in the United Kingdom since 2001, and hospitals are mandated to report all MRSA bacteraemias to central government on a monthly basis.

Consequently, GSTT ICU has over the last decade sequentially initiated a series of strategies in an attempt to prevent MRSA bacteraemias and acquired MRSA-colonisation. These interventions include:

• The development of guidelines for the insertion and care of central lines (2002)
• Daily Triclosan bodywashes for all ICU patients (April 2004)
• A Daily Checklist to encourage earlier removal of vascular lines (January 2006)
• Daily bodywashes with 2% CHG washcloths – Triclosan no longer available (January 2007)
• CHG powder applied to the axillae, groin, and skinfolds for all patients (January 2007)
• MRSA colonization on the basis of positive screening swabs or clinical specimens taken within the first 48 hours of ICU admission.

Results

Definitions used in the study
Bacteraemia: Defined as an MRSA-positive blood culture >48 hours after admission to the ICU (includes possible skin contaminants and genuine positives).
Acquisition: Defined as the absence of MRSA in specimens at the time of ICU admission or any recent hospital admission, but the presence of MRSA in a skin swab or a clinical specimen taken >48 hours after admission.
Admitted: Defined as a patient known to be colonized or infected with MRSA based on previous testing at GSTT or at a referring hospital (positive growth but no clinical infection) or a patient found to be colonized or infected with MRSA on the basis of positive screening swabs or clinical specimens taken within the first 48 hours of ICU admission.

Our observations confirm that a combination of many infection prevention procedures are often necessary to control MRSA acquisition and bacteraemia in the ICU. Our data also suggests that over the last 9 years the most effective intervention has been the introduction of daily antiseptic body washes for all ICU patients – irrespective of their MRSA status. The introduction of the 2% CHG bathing cloths has been associated with sustained reduction – indeed almost total elimination – of MRSA bacteraemia. Reducing MRSA rates in the ICU may well have profound beneficial effects for the rest of the hospital.

References

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