



MicrobiologyDX

Report on the Effectiveness of Antimicrobial Medications in Treating
Multiple Antibiotic Resistant Coagulase Negative Staphylococcus (MARCoNS)
and MRSA

Hopkinton Drug, Hopkinton, MA

Dr. Joseph D. Musto, D.A.B.B.
President and Director of Laboratory Medicine
George Hrabec, B.Sc., M.Sc.
Director of Microbiology

Introduction:

Chronic Inflammatory Response Syndrome (CIRS) describes a constellation of symptoms, associated laboratory findings and test results associated with biotoxin exposure in genetically susceptible individuals. First identified by Dr. Ritchie Shoemaker, M.D., his clinical research has resulted in a step-wise approach to patient care that has been demonstrated to treat and prevent symptoms in susceptible individuals.

In CIRS, MARCoNS have been found to colonize the deep nasal cavity in 80% of individuals with low MSH hormone. The presence of MARCoNS in the nasopharynx impairs the body to re-establish normal levels of MSH. Adequate MSH is required for recovery from biotoxin induced CIRS. MARCoNS may exist in a biofilm, which makes it more difficult to treat. A deep nasal culture is obtained and sent to Microbiology Dx, Bedford, MA. If Coagulase Negative Staphylococci are present and resistant to more than one class of antibiotics, then treatment is required.

This report shows the in-vitro evaluations of both the BEG Spray and its individual components. (Reference: Sonia Rapport, M.D. and Margaret DiTulio, APRN, MS, MDA, excerpts from essays on Dr. Ritchie Shoemaker's protocol)

I. Objective:

To evaluate the effect of concentration of individual and combined antimicrobials on Multiple Antibiotic Resistant Coagulase Negative Staphylococci (MARCoNS).

II. Materials:

- A. Antimicrobials tested in the following in liquid form:
 - 1. Bactroban 0.2% (Mupirocin)
 - 2. EDTA 1%
 - 3. Gentamicin 0.025%
 - 4. BEG Combined Liquid Formulation containing #1, 2, and 3 above

III. Organisms Tested:

- A. Staphylococcus epidermidis (SE) ATCC 35984 (strong biofilm producer). Multiple Antibiotic Resistant Coagulase Negative Staphylococcus (MARCoNS Positive).
- B. Methicillin Resistant Staph aureus ATCC 1026.

IV. Testing Protocol:

- A. All testing was performed in duplicate.
- B. A McFarland Standard (MS) of 0.5 was prepared for the MARCoNS testing.
- C. All testing was performed in a liquid format.
- D. Incubation was performed at 37°C for 18 – 24 hours.
- E. Quality Controlled was performed for each antimicrobial concentration tested.
- F. TSB (liquid nutrient broth) and when necessary, Blood Agar plates were used for the testing.
- G. Testing was performed in 12 x 75 polystyrene tubes; 50 µl of the MS for MARCoNS was pipetted into 2 ml TSB and then four different volumes of antimicrobials were pipetted into each set of duplicate tubes, and then incubated for 24 hours at 37°C.

H. At 24 hours of incubation, the tubes were removed and observed for growth or no growth.

V. Results:

- A. Testing of SE ATCC 35984, strong biofilm producer (MARCoNS +) showed the EDTA 1% Solution to be effective at 0.05%, the Mupirocin 0.2% to be effective at 0.01% and the Gentamicin 0.025 to be ineffective at 0.0125%.
- B. Testing of the MARCoNS positive organism stated above by the BEG liquid equivalent to BEG Nasal Spray showed effectiveness at 1/20th of the stated concentrations.
- C. Patient Evaluation - Twelve MARCoNS positive patient samples were tested against EDTA 1%. All cultures showed no growth of the MARCoNS at 1/5th (0.2%) of the original concentration. The EDTA was completely effective in eradicating the MARCoNS.
- D. Testing of Methicillin Resistant Staph aureus ATCC 1026 (MRSA) showed both EDTA 1% and the BEG Solution eradicated the MRSA at 1/20th (0.05%) of the original solutions.

VI. Conclusion:

- A. The BEG solution and its components were tested against a defined organism, Staphylococcus epidermidis ATCC 35984, a strong biofilm producer (MARCoNS positive) to establish the effectiveness of both the BEG and its individual components in solution.
- B. The EDTA 1%, Mupirocin 0.2% and the BEG Spray solution kill the MARCoNS at 1/20th of the original preparation. It appears that EDTA and Mupirocin individually and combined in the BEG Spray solution penetrate the biofilm and kill the MARCoNS.
- C. It is indicated in the experiments in vitro, that EDTA is a potent antimicrobial agent at very low concentrations. This may be helpful information to reduce the concentration in the BEG spray to minimize irritation in the nasal membranes. This BEG spray is the recommended medication to eliminate MARCoNS in the Dr. Ritchie Shoemaker Protocol in treating patients with mold illness (CIRS).