



Use of Potentiated Antibiotics for Treatment of Bacterial Infections

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Microorganisms that cause nosocomial infections are usually present as normal flora of the intestinal tract of animals.¹ Of particular concern to all those who depend on antibiotics to treat life-threatening bacterial infections is the significant increase in *Pseudomonas aeruginosa*, *Enterobacter* sp., *Klebsiella* sp., *Enterococcus* sp. and *Staphylococcus* sp. that are resistant to our most evolved classes of antibiotics, vancomycin or methicillin.²

The use of chelating agents to potentiate the killing effects of antibiotics was first described in the mid 60's.³ Since these early descriptions, chelating agents mixed with antibiotics have been used to treat bacterial otitis, rhinitis, metritis, fistulas and infected burns.⁴⁻⁷ The results of these treatments have varied with the components of each preparation.

Using vancomycin resistant *P. aeruginosa* and *Enterococcus* sp. and methicillin resistant *S. aureus* recovered from human burn patients, we have developed testing techniques and highly efficacious potentiated antibiotic formulations for killing these pathogens using such basic antibiotics as neomycin and ampicillin.⁸ In experimental animals, these potentiated antibiotic preparations will successfully resolve full thickness ulcers associated with common "flesh eating" bacteria like *Aeromonas* sp., *Pseudomonas* sp., *Flavibacterium* sp. and *Staphylococcus* sp. By comparison, untreated animals with these full thickness infected ulcers typically develop sepsis and die.

Potentiated antibiotic solutions offer additional benefits including facilitation of wound healing and a mechanism of killing that substantially reduces the likelihood that a bacteria can develop resistance to the antibiotics included in the preparation. In vitro studies have shown that bacteria that typically develop resistance to an antibiotic after 3 passage exposures are unable to develop resistant to a potentiated antibiotic after 5 passage exposures.⁸

In a clinical setting, our potentiated antibiotic solutions have proven of benefit in treating difficult to resolve bacterial-associated lesions like ulcerative dermatitis, infectious stomatitis, burns and mastitis.⁹



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