

PREVENTION OF ACUTE RESPIRATORY FAILURE DUE TO ADMINISTRATION OF POLYMYXINS BY INTRAVENOUS CALCIUM GLUCONATE IN CRITICALLY ILL PATIENTS FOR TREATING CARBAPENEM RESISTANT INFECTIONS IN ACUTE MEDICINE UNIT: A QUALITY IMPROVEMENT PROJECT (QIP)

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Background: Polymyxin B and colistin are most potent antibiotics for treating carbapenem resistant infections due to multidrug resistant organisms that are currently rising remarkably and alarm signs for global health. These are last resort options for bacteremia during crisis time when pathogens are only sensitive to polymyxins. Most common life threatening complication is respiratory muscle paralysis due to neuromuscular blockage that lead to apnea, acute type 2 respiratory failure and death. Main aim of this quality Improvement project (QIP) was to demonstrate therapeutic effectiveness and outcomes of I/V calcium gluconate during administration of polymyxins. **Methods:** This QIP was conducted at acute medicine and HDU of a tertiary care hospital for 2 months in Bangladesh. Patients who got I/V calcium gluconate with polymyxins in January and February, 2023 were compared with similar data without calcium gluconate for prior 4 months. Data analysis and interpretation done by unpaired t test. **Results:** Primary outcome shows statistically significant decrease in intubation and mechanical ventilation due to sudden respiratory failure and ICU transfer after getting I/V calcium gluconate during polymyxins (30.8%, n=13 and 88.9%, n=9 and p= <0.005). **Conclusion:** This study shows strongly visible positive outcome in prevention of acute respiratory failure by polymyxins in critically ill patients. We feel that all physicians may practice this study in acute medicine and critical care setup.

Keywords: Acute respiratory failure, polymyxins, intravenous calcium gluconate, carbapenem resistant infections, quality improvement project (QIP).

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