

## **Impact of Different Antibiotic Regimens in the Treatment of Carbapenem-Resistant Bacteria on Mortality and Readmission**

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**Background:** Carbapenem-resistant Enterobacteriaceae (CRE) has become an obvious threat, and is associated with an increase in morbidity and mortality. Therefore, evaluation of the following antibiotic regimens: Colistin only antibiotic regimen (COAR), Colistin combination antibiotic regimen (CCAR), and Non-Colistin antibiotic regimen (NCAR) on mortality and readmission is essential to determine the best intervention.

**Objective:** To evaluate the impact of different antibiotic regimens used in the management of Carbapenem resistant bacteria (CRB) on mortality and readmission.

**Design:** A Retrospective Cohort Study.

**Setting:** King Hamad University Hospital, Bahrain.

**Result:** One hundred nine patients with CRE 37 (33.9%), CRB 36 (33%) and CRPsA 26 (23.9%), and 10 (9.2%) *Escherichia coli* MDR OXA-48, *Calcoaceticus* MDR, and *Enterobacter cloacae* MDR OXA-48 from 1 January 2017 to 31 December 2018 were evaluated. The mean age was 66 ( $\pm$ 16) years. Forty-five (41.2%) patients received COAR, 44 (40.3%) received NCAR, and 20 (18.34%) received CCAR. The mortality was higher in COAR 30 (27.5%) compared to 10 (9%) in CCAR and 20 (18.3%) in NCAR ( $P=0.117$ ). On the other hand, readmission was found to be higher in NCAR 6 (50%) compared to 5 (41.7%) in COAR and one (0.9%) in CCAR ( $P=0.45$ ).

**Conclusion:** None of the three different antibiotic regimens (COAR, CCAR, and NCAR) was found to be significantly associated with reduced mortality or readmission; however, COAR had the worst negative impact on mortality or readmission.