Clinical Review of Carbapenem-Resistant *Enterobacteriaceae* (CRE) in Buriram Hospital (BRH)

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**Objectives:** To demonstrate the clinical presentation, antibiotic sensitivity patterns and outcomes of treatment of infections caused by carbapenem-resistant *Enterobacteriaceae* (CRE) in Buriram Hospital (BRH).

**Methods:** Baseline characteristics of patients whom were admitted between 3rd March, 2012 and 5th June, 2012 and clinical presentation, diagnosis, and treatment outcomes were obtained by chart review. All isolates were sent to the Section of General Bacteriology, Department of Medical Science, Ministry of Public Health to perform molecular diagnosis of β-lactamase enzyme. Descriptive statistic was used to analyze the data.

**Results:** A total of 15 patients were found to have CRE, ten of which were male (66.7%) and mean age was 62 years old. The mean length of stay was 40 days. Thirteen patients (86.7%) had chronic underlying diseases (history of stroke, Alzheimer’s disease, diabetes mellitus, hypertension, and chronic kidney disease). 11/15 (73.3%) patients were in medical ward, and 4/15 (26.7%) were in surgical ward. CRE was most commonly grew from urine culture 9/15, (60%), decubitus ulcer and diabetic foot 4/15 (26.7%), and sputum 2/15 (13.3%). No blood culture was positive. These CRE were most commonly colonization 12/15, (80%) and the remaining had nosocomial, catheter-associated urinary tract infection. No history of travelling to South Asia or having family members from such areas was reported by all patients. Seventeen isolates of CRE were found from 15 patients. All isolates produce New Delhi metallo beta-lactamase-1 (NDM-1). These bacterial species include *Klebsiella pneumoniae* 13/17 (76.5%), *Enterobacter cloacae* 3/17 (17.6%), and *E. coli* 1/17 (5.9%). Thirteen isolates were still susceptible to amikacin and 2/17 (11.8%) was susceptible to nitrofurantoin. Colistin susceptibility testing could not be performed at our hospital. All patients had exposed to broad-spectrum antibiotics including cephalosporin, 8/15 (55.3%); carbapenem, 4/15 (26.7); fluoroquinolone and tigecycline, 1/15 (6.7%) each. One patient died of infected bed sore with *A. baumannii* sepsis; one died of multiple nosocomial infections, and 10 patients recovered from their illness. 3/15 (20%) had poor prognosis from their underlying (ESRD with uremic symptom, an elderly 77 years old with CVA, and a patient with advance colon cancer who wish to receive only palliative treatment) so that aggressive therapy was not given.

**Conclusion:** CRE NDM-1 in BRH most commonly occurred in people who have chronic medical conditions, prolonged stays in healthcare settings, on invasive medical devices, history of taking certain antibiotics. Early detection, antimicrobial stewardship, minimizing the use of devices and contact precautions are warrant.