Carbapenem-resistant Klebsiella pneumoniae surgical site infection

- Clinical and Microbiology Predictors for Therapeutic Failure in Sternal Surgical Site Infections - A Retrospective Cohort Study
- Treatment of a challenging NDM and OXA-48-producing Klebsiella pneumoniae causing skin and soft tissue infection and exhibiting resistance to the combination of Ceftazidime-Avibactam and Aztreonam: A case report
- Dissemination of bla(NDM-5)-carrying IncX3-type plasmid among non-clonal Escherichia coli strains colonising a dog with a skin infection caused by a carbapenem-resistant Klebsiella pneumoniae, United Kingdom
- Prevalence of extended-spectrum beta-lactamase and carbapenem-resistant Klebsiella pneumoniae in clinical samples
- Clinical characteristics of carbapenem-resistant Klebsiella pneumoniae infection/colonisation in the intensive care unit: a 9-year retrospective study
- Treatment of Central Nervous System Infection Caused by Multidrug-Resistant Klebsiella pneumoniae with Colistin Sulfate Intravenously and Intrathecally: A Case Report
- Multicenter Study of Carbapenemase-Producing Enterobacterales in Havana, Cuba, 2016-2021
- Multidisciplinary Approach to Multiple Multiresistant Agent Infection of Instrumented Spine Surgery: A Case Report

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A prospective study on hospital-acquired infection (HAI) was undertaken in the eight-bed neurosurgical intensive care unit (NSICU) of a teaching hospital in Rome, Italy. All patients admitted for >48 h between January 2002 and December 2004 were included. The infection control team collected the following data from all patients: demographic characteristics, patient origin, diagnosis, severity score, underlying diseases, invasive procedures, HAI, isolated micro-organisms and antibiotic susceptibilities. Overall, 323 patients were included in the study. Mean age was 55.5 years (range 17-91), and mean American Society of Anesthesiologists' score was 2.88. Seventy (21.7%) patients developed 132 NSICU HAIs: 43 pneumonias, 40 bloodstream infections (BSIs), 30 urinary tract infections (UTIs), 10 cases of meningitis associated with an external ventricular drain (EVD) and nine surgical site infections (SSIs). The SSI rate was high (5.6%), but a reduction was achieved during the three-year period. There were 7.2 bloodstream infection episodes per 1000 days of device exposure; 11.00 pneumonias per 1000 days of mechanical ventilation and 4.5 UTIs per 1,000 days of urinary catheterisation. Among patients with an EVD, the SSI relative risk was 11.3 [95% confidence intervals (CI) 4.2-30.6; P<0.01]. Sixty-one (18.9%) patients died. Logistic regression analysis showed that mortality was significantly associated with infection [odds ratio (OR)=2.28; 95%CI 1.11-4.71; P=0.02] and age (OR=1.04; 95%CI 1.01-1.06; P=0.002). Candida spp. were the leading cause of UTIs (40.0%) and the third most common cause of BSIs (12.7%). Antibiotic-resistant pathogens included meticillin-resistant staphylococci (77.5%), carbapenem-resistant Pseudomonas aeruginosa (36.4%), and extended-spectrum beta-lactamase-producing Klebsiella pneumoniae (75.0%). Although the overall incidence of infection (21.7%) was within the range of published data, the associated mortality, the increasing severity of illness of patients, and the emergence of multi-drug-resistant organisms shows the need to improve infection control measures [1)].

A 76-year-old man who underwent complex neurosurgery for cervical spinal stenosis. Postoperatively, the patient developed a fever and a poorly healed surgical wound. Numerous blood routine tests, inflammatory markers, pathogenic tests of cervical secretions, cerebrospinal fluid (CSF), and sputum were sent for diagnosis. After empirical antimicrobial treatments failed, the CSF and wound pus cultured carbapenem-resistant Klebsiella pneumoniae. The regimen was adjusted to colistin sulfate intravenously and intrathecal injection combined with tigecycline. In addition, the management of infection foci, including continuous lumbar pool drain, cervical 3-5 internal fixation removal with cervical 1-6 spine dilation, CSF leak repair, and right thigh broad fasciotomy, were performed. After treatment, the patient was discharged with multiple sets of negative CSF cultures and the infection under control. For CNSIs caused by MDR-GNB, the selection of colistin sulfate for intravenous and topical combination treatment is a viable choice [2].

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Orsi GB, Scorzolini L, Franchi C, Mondillo V, Rosa G, Venditti M. Hospital-acquired infection surveillance in a neurosurgical intensive care unit. J Hosp Infect. 2006 Sep;64(1):23-9. doi: 10.1016/j.jhin.2006.02.022. Epub 2006 Jul 11. PMID: 16839643.

2)

Lu X, Zhong C, Chen H, Xie X, Lv X. Treatment of Central Nervous System Infection Caused by Multidrug-Resistant Klebsiella pneumoniae with Colistin Sulfate Intravenously and Intrathecally: A Case Report. Pharmaceuticals (Basel). 2022 Nov 29;15(12):1482. doi: 10.3390/ph15121482. PMID: 36558933; PMCID: PMC9787966.