Ceftazidime-avibactam to treat severe infections due to Klebsiella pneumoniae carbapenemase-producing in the critically ill

Dott. ALICE VERONESE (1), Dott. IRENE CIGADA (1), Dott. SILVIA SANTINI (1), Dott. PIETRO MANDELLI (1), Dott. CHIARA SPROCCHI (1), Dott. GREGORIO SPAGNOLIN (1), Dott. ANTONIO CASTELLI (1), Dott. ALBERTO CORONA (1)

(1) PO Luigi Sacco, Polo Universitario, via GB Grassi 74, Milano, Italia.

Argomento: Altro

Background: In the critially ill patients, carbapenemases producing (cp) *Klebsiella pneumoniae* (KP) infection rate ranges between 5-50% and is associated with a high mortality (19-51%). The use of ceftazidime-avibactam - a 3-generation cephalosporin plus a new inhibitor of class A (KPC), C (AmpC) and D (OXA48) ESBL, may resolve life-threatening conditions.

Materials/methods: Case-report of 14 patients undergoing compassionate treatment with ceftazidime-avibactam after Ethic Committee authorization.

Results: Results From April to November 2017, 14 patients (10 M and 4 F), median age 57 (IQR = 42.5-70.5) were given ceftazidime/avibactam for major KP-cp (meropenem MIC > 16) infections: 9 bacteramia (B) (3 abdominal sepsis, 2 mediastinitis, 2 CVC, 2 primary); 3 secondary peritonitis and 2 UTI. 10/14 (71.5%) patients, developed a septic shock [median (IQR) SOFA score 10 (8-17)) and needed mechanical ventilation [median (IQR) 8 (4-17) days], norepinephrine infusion [median (IQR) 3 (2-5) days]; 4 patients underwent renal replacement therapy. The median treatment duration (IQR) was 14 (13-14) days. In 41.6% of cases, antibiotic-therapy therapy combination (phosphomycin and colistin) was chosen. All the patients experienced a clinical response by 72/96 hours from the ceftazidime/avibactam commencing. In 8/9 bacteraemic patients negativization of blood culture occurred by 96 hours as well as of the rectal swab in 5/14 patients. 11/14 (78.5%) patients survived, whereas death was caused by multi-organ failure. The susceptibility test of strains showed sensitivity to ceftazidime/avibactam, whereas 100% of resistance to carbapenems (meropenem/imipenem/ertapenem), quinolones and III/IV generation cephalosporin, tigecycline, piperacillin/tazobactam and 62.5% of susceptibility to fosfomycin and colistin.

Conclusions: The 14 strains of KP-cp were susceptible to ceftazidime-avibactam despite the high carbapenem-resistance recorded in our ICU, because od rare identification of KP-cp VIM / NDL +. The preliminary data seems to confirm the efficacy and clinical utility of this antibiotic for the critically ill patients.