A case of septic shock and multiorgan failure with ARDS caused by hypervirulent Klebsiella Pneumoniae in a patient with severe chest trauma.

Dott. RAFFAELE DI FENZA (1), Dott. MARCELLO GUARNIERI (1), Dott. RICCARDO PINCIROLI (2)(1), Dott.ssa HEDWIGE GAY (3), Dott.ssa ALESSANDRA BIELLI (4), Dott. CARLO ANDREA ORCESE (5), Prof. ROBERTO FUMAGALLI (2)(1)

(1) Università degli Studi di Milano-Bicocca - Facoltà di Medicina e Chirurgia, Via Cadore 48, Monza, Italia.

(2) ASST Grande Ospedale Metropolitano Niguarda - SC Anestesia e Rianimazione 1, Piazza Ospedale Maggiore 3, Milano, Italia.

(3) Università degli Studi di Milano - Facoltà di Medicina e Chirurgia, Via Antonio di Rudinì 8, Milano, Italia.

(4) ASST Grande Ospedale Metropolitano Niguarda - Analisi Chimico Cliniche e Microbiologia, Piazza Ospedale Maggiore 3, Milano, Italia.

(5) ASST Grande Ospedale Metropolitano Niguarda - SC Malattie Infettive, Piazza Ospedale Maggiore 3, Milano, Italia.

Argomento: Caso clinico

Background

Community-acquired hypervirulent *Klebsiella* infections (hv*Kp*) are increasingly reported since the first cases described in Asia in the mid-80s. hv*Kp* strains are endowed with the *rmpA* gene that increases capsule strength resulting in resistance to phagocytosis, frequent and life-threatening dissemination to distant organs (liver, brain, bones, eyes, muscles).

Case presentation

A 50 years-old Chinese citizen was admitted to the ER with severe chest trauma after being involved in a road traffic accident. Hemodynamic instability and respiratory failure were due to hypertensive pneumothorax requiring four large bore drainages and active air leak resulting from a large bronchopleural fistula (over 30% of tidal volume loss) in the presence of a wide pneumatocele. After stabilization the patient developed (day 4-5) septic shock with multiple organ failure characterized by: severe ARDS necessitating inhaled nitric oxide and prone positioning; renal failure needing continuous renal replacement therapy with a worst SOFA score of 23 (day 6). Targeted antimicrobial therapy with piperacillin-tazobactam was started in the presence of multi-sensitive hv*Kp* both in blood cultures (day 4) and in the bronchial aspirate culture (from day 1). Vasopressor requirements were dramatically reduced (day 7) with antimicrobial therapy and two cycles of extracorporeal polymyxin B hemoperfusion. Investigations for possible sources included transesophageal ultrasound (no vegetations), brain CT scan (no CNS abscesses), fundus oculi (negative for endophthalmitis) and body CT scan (thickening of pulmonary infiltrates, development of lung abscesses, no liver abscesses). Levofloxacin was added on day 9, with later confirmation of hv*Kp* in the bronchial aspirate. Patient recovered spontaneous diuresis (day 11), was freed from vasopressors (day 14) and transferred for weaning to another ICU (day 20).

Discussion

Polytrauma is a risk factor for developing invasive hv*Kp* infections in unknown carriers. Eventual emergence of carbapenemase producing strains of hv*Kp* may be a serious threaten to ICU patients infected with hv*Kp*.