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Empiric Antibiotic Choice for Hospitalized Patients with Community-Acquired Pneumonia: β -lactam/ β -lactamase inhibitor or Fluoroquinolone Alone?

Fatma Tokgöz Akyl¹, Mustafa Akyl², Aylin Güngör³, Neslihan Köse³, Kübra Akyüz², Sümeyye Bekir³, Hatice Türker³, Tülin Sevim³

¹Clinic of Pulmonology, Çanakkale Mehmet Akif Ersoy State Hospital, Çanakkale, Turkey

²Clinic of Thoracic Surgery, Çanakkale Mehmet Akif Ersoy State Hospital, Çanakkale, Turkey

³Clinic of Pulmonology, Süreyyapaşa Chest Diseases and Thoracic Surgery Training and Research Hospital, İstanbul, Turkey

Objectives: The empirical antibiotic treatment of patients with community-acquired pneumonia (CAP) results in failure (TF) in about 6-24% of the cases. TF may cause longer hospital stay, intensive care unit (ICU) treatment and death. In hospitalized patients with CAP, empirical treatment with β -lactams and macrolid (BLM) combination and respiratory fluoroquinolone (FQ) are frequently used. Contradictive results have been reported on the efficacy of the regimens with either BLM or FQ. The aim of the present study is to compare the TF rates and analyze the predictive factors of treatment outcome with these 2 regimens.

Methods: The study is a retrospective, single-center study. Between 2016 and 2017, patients hospitalized with a diagnosis of CAP were investigated. Patients who were initially treated with either BLM (β -Lactams and β -Lactamase inhibitors and third generation cephalosporin, azithromycin, clarithromycin, erythromycin) or FQ (levofloxacin, moxifloxacin) were included. TF is defined as antibiotic change due to progression or inadequate response, ICU treatment requirement or death. Demographics, additional diseases, baseline laboratory data and treatment outcome were recorded. CURB-65 and pneumonia severity indices (PSI) were calculated. The predictive factors of treatment outcome were analyzed.

Results: Of all the 144 patients included, the mean age was 67 \pm 16 and 102 (71%) were male. In both groups, seventy-two patients were initially treated with BLM and 72 with FQ. Patients' demographics, additional diseases, CURB-65 and PSI scores were similar between the treatment groups ($p>0.05$). BLM patients ended with failure in 12 (17%) and 11 (15%) in FQ group ($p<0.005$). In patients treated with BLM, lower baseline oxygen saturation ($p=0.007$), higher levels of leucocyte ($p=0.001$), serum urea ($p<0.001$), and neutrophil to lymphocyte ratios ($p<0.001$) (NLR) were found as predictors of treatment failure. FQ treatment failure was found to correlate with higher lactate dehydrogenase (LDH) ($p=0.003$), PSI ($p=0.003$), and CURB-65 ($p=0.008$) levels.

Conclusion: Patients initially treated with either BLM or FQ are similar in clinical and laboratory findings. The treatment failure rates are also parallel in BLM and FQ. Lower baseline oxygen saturation levels, higher leucocyte, CRP and NLR levels may predict BLM treatment failure. In patients with higher LDH levels, CURB-65 and PSI scores, FQ treatment failure rates are found to be higher.

Keywords: CURB-65, pneumonia, PSI