Resistance Pattern of Pneumococcal Pneumonia to Ceftriaxone, Azithromycin and Co-Amoxiclav in Clinical Setting and Laboratory

Ebrahim Zade, A (MD)
Assistant professor of infectious diseases, Hepatitis research Centre, School of medicine, Birjand University of medical sciences, Birjand, Iran

Zare Bidaki, M (PhD)
Assistant professor of microbiology, Hepatitis research Centre, School of paramedical, Birjand University of Medical Sciences, Birjand, Iran

Saber Hosseini, SN (MD)
General practitioner, Birjand University of Medical Sciences, Birjand, Iran

Sharifzade, GH. (PhD)
Assistant professor of epidemiology, Research center for factors affecting health, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran

Derayati, Z. (BSc)
BSc of Medical Laboratory Sciences, Biochemistry Research Centre, Birjand University of Medical Sciences, Birjand, Iran

Corresponding Author: Zare Bidaki, M

Email: m.zare@live.co.uk

Received: 7 Jun 2014
Revised: 19 Oct 2014
Accepted: 22 Oct 2014

Abstract

Background and Objective: *Streptococcus pneumoniae* is the most common cause of acquired bacterial infections in the respiratory system. In recent years, a high incidence of pneumococcal resistance to different antibiotics has also been appeared. This study was conducted to evaluate the *in vivo* and *in vitro* resistance of pneumococcal pneumonia to ceftriaxone, azithromycin and co-amoxiclave in clinical setting and laboratory.

Material and Methods: In this single-blind clinical trial study, the participants were the patients with the diagnosis of pneumonia referred to infectious diseases clinic in Vali-e-Asr hospital of Birjand university of Medical Sciences, October 2012 - April 2014. The patients were randomly allocated to one of the three therapeutic regimes including azithromycin, ceftriaxone, and co-amoxiclave. After 48-72 hours that the infection was confirmed by paraclinical findings, the patients with pneumococcal pneumonia remained in the study and their *in vivo* and *in vitro* resistance to the above mentioned antibiotics were compared.

Results: The most *in vitro* drug resistance was to co-amoxiclave (41.5%) and the least to ceftriaxone (20.8%) ($P>0.05$). For *In vivo*, the most resistance was to azithromycin (47.4%) and the least one to ceftriaxone (6.7%) ($p<0.05$). The agreement coefficient between the laboratory antibiogram test and the clinical responses to therapeutic regimes of azithromycin, co-amoxiclave and ceftriaxone was 0.25 ($p=0.26$), 0.46 ($p=0.02$) and 0.44 ($p=0.04$), respectively.

Conclusion: With regard to the demographic characteristics of the patients in this study, the resistance of *Streptococcus pneumoniae* to ceftriaxone is less than that of co-amoxiclave and azithromycin in both clinical setting and laboratory.

Keywords: Drug Resistance, *Streptococcus Pneumonia*, *Azithromycin*, *Ceftriaxone*, *Co-Amoxiclave*

This paper should be cited as: Ebrahim Zade, A, Zare Bidaki M, Saber Hosseini SN, Sharifzade GH, Derayati Z. [Resistance Pattern of Pneumococcal Pneumonia to Ceftriaxone, Azithromycin and Co-Amoxiclav in Clinical Setting and Laboratory]. mljgoums. 2014; 8(Suppl 4): 66-76[Article in Persian]