The expansion of use of intravenous colistin for the treatment of patients with multidrug-resistant (MDR) gram-negative bacterial infections is a major concern in recent years (1). Even a few years ago there were many opponents to the use of colistin. The medication was not considered adequately effective. More so, most considered its use to be probably dangerous because of safety issues. Others questioned the scientific validity of the various studies that emerged on the clinical effectiveness and safety of colistin. However, the necessity to treat infections due to MDR gram-negative bacteria led to the revival of colistin in clinical practice at the dawn of the 21st century (2).

Colistin, a natural substance produced by Bacillus polymyxa subspecies colistinus, is a cationic lipopeptide. The hydrophilic and lipophilic moieties allow binding to the lipopolysaccharide molecules on the outer cell wall of gram-negative bacteria, displacing ions that stabilize the lipopolysaccharide molecules, leading to cell permeability changes, leakage of the cellular content, and cell death (3).

The effectiveness of intravenous colistin for treatment of lung infections has been debated because of its poor penetration into the pulmonary parenchyma. Aerosolized colistin might be an alternative option for treatment of patients with VAP because the drug achieves high concentration in the respiratory tract while avoiding systemic effects (4). Aerosolized colistin has been successfully used to prevent pulmonary exacerbation and lung deterioration in patients with cystic fibrosis (CF) colonized with Pseudomonas aeruginosa. Colistin has been recommended in the most recent American Thoracic Society Guidelines as a therapeutic option for the treatment of VAP caused by MDR gram-negative organisms. However, the experience with the use of colistin has been limited (5).

Florescu et al specifically evaluated the published clinical evidence on the use of colistin for ventilator-associated pneumonia (VAP). They conclude that the effectiveness and safety of colistin are not statistically different from those of frontline antibiotics for the treatment of VAP. Indeed, their meta-regression analysis shows no significant change in clinical response after controlling for concomitant antibiotic treatment. Their analysis reinforces that colistin is indeed an effective and acceptably safe choice in the treatment of VAP in multi drug resistance gram negative ventilatory associated pneumonia. The conclusion of this study is significant as it conveys the current standing of the therapeutic role of colistin in VAP. It is of particular importance because there have been concerns in the past regarding the pharmacokinetics and pharmacodynamics of colistin, especially whether the drug could achieve appropriate levels in the lung. This hesitation by physicians to use colistin in its intravenous and nebulized forms is interesting because colistin has been used uninterrupted during the last decades in patients with cystic fibrosis for severe Pseudomonas aeruginosa respiratory tract infections. Gradually, the use of colistin has entered successfully clinical practice mainly in the intensive care unit (ICU) setting in most parts of the world (4).

The attributable mortality associated with MDR bacteria, including Acinetobacter baumannii, cannot be questioned nowadays, because inappropriate empirical antibiotic treatment is associated with increased mortality. Hence, physicians use colistin mostly when there is resistance to all other available antibiotics (including carbapenems) or when clinical failure ensues after using other antibiotics or even empirically in the ICU setting when MDR, extensively drug-resistant (XDR), or pandrug-resistant (PDR) gram-negative bacteria constitute a significant proportion of isolated bacteria (5).

Owing to the fact that there is no sufficient alternative antibiotic choices for MDR gram negative bacteria during the following years, it is essential to understand that colistin is important and should be logically used as best alternative in MDR, XDR, PDR gram negative bacteria. To sum up, we could conclude that colistin is a valuable and available antibiotics option for physician who dealing with MDR, gram negative infection ICU and Immune compromised patients in Iran. (6)

**References**