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Incidence of Ventilator Associated Pneumonia in Patients Undergoing Heart Surgery

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Dear Editor,

Heart surgery is usually followed by complications, such as ventilator-associated pneumonia (VAP). VAP is an important complication after heart surgeries and also is considered as the most common infection in intensive care units (ICUs). It is estimated that more than 80% of hospital pneumonias are VAP [1, 2]. Due to large number of heart surgeries in Masih Daneshvari hospital and lack of reliable information about VAP, the present study was designed to determine the incidence of VAP in patients undergoing heart surgeries. This investigation was carried out in Masih Daneshvari hospital, Tehran, Iran. Records of patients, who had undergone heart surgery from 2001 until 2011, were studied. Patients with heart surgeries who had been ventilated for more than 48 h were included. VAP was diagnosed with following criteria: new or progressive pulmonary infiltrates with two or more: fever ($\geq$ 38.5°C) or hypothermia ($>$ 36°C), leucocytosis ($\geq$ 12 $\times$ 10^3), purulent tracheobronchial secretion or reduction of partial pressure of atrial oxygen (Pao_2).

All heart surgeries were performed according to routine protocols of the hospital. Daily oropharyngeal rinsing with chlorhexidine swabs were done. All patients received meropenem, vancomycin and ciprofloxacin as a VAP prophylaxis. Patients suffering from VAP were studied about the pathogens. Routine microbiological tests were done to detect the strains. From a total of 426 heart surgeries, 70 patients (16%) had VAP. Forty one of them were male (58.6%). The most common underlying disease was diabetes (46 patients). Sixteen of patients with VAP were smokers and 7 patients were opium addicts. According to American society of anesthesiologists, physical status classifications of patients with VAP were as follows: 2.3% class I, 26.3% class II, 39.5% class III and 3.4% class IV. Eighty five percent of patients underwent coronary artery bypass grafting (CABG) and 15% had CABG with valvuloplasty. Mean of operation duration was 333 $\pm$ 98 minutes. Mean of aorta clumping was 70 $\pm$ 21 minutes. Mean of pump using was 114 $\pm$ 27 minutes. Acientobacter was the most common. Among 70 patients with VAP, 5.7% of them died because of infection. Our prospective study showed that VAP was very important non cardiac complication of heart surgery accompanied with a considerable rate of mortality. However, several studies showed different rates of mortality from 3 to 21.6% [2, 3]. Microorganisms causing VAP vary considerably according to the clinical status of patients and duration of stay in ICU. It is noteworthy that due to multiple comorbidities in ill patients, this is often difficult to attribute rate of mortality merely to VAP. Importantly, such problems should be acknowledged as a limitation of our study. It is suggested to use separate ICUs for general patients and patients with heart surgeries.

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