

O196

Oral Session

Healthcare - associated infections - from analysis to interventions

A MULTI-CENTER SURVEILLANCE ON VENTILATOR-ASSOCIATED EVENTS IN CHINA

Z. Zong¹, S. Zhu²

¹Center of Infectious Diseases, West China Hospital, Chengdu, China ; ²Department of Infection Control, West China Hospital, Chengdu, China

Objectives: As the surveillance on ventilator-associated pneumonia (VAP) was problematic, the American CDC has developed a new paradigm for surveillance on ventilator-associated events (VAE). Although this new algorithm has been widely used in the USA, few studies have demonstrated its validity and it remained untested whether the surveillance could also be applied in resource-limited settings such as China. This study was performed to further challenge the validity and to test the feasibility of the VAE surveillance in China.

Methods: A multi-center surveillance on VAE was carried out in ICUs of 15 hospitals in Sichuan, China, from April to July 2013, with the approval by local ethical committee. Adult patients who had received mechanical ventilation for three days or longer were monitored for VAE using the definitions and algorithm developed by CDC. VAE has four types of events in three tiers, i.e. ventilator-associated condition (VAC), infection-related ventilator-associated complications (IVAC) and possible or probable VAP.

Results: During the 4-month period, 5,256 patients were admitted to ICUs of the hospitals with 28,248 ICU-stay days and 14,140 days on ventilation. However, only 642 patients (12.2%) who had 5,960 days on ventilation, corresponding to 42.1% of the total ventilation days, were eligible for VAE surveillance. There were 412 (64.2%) males and 230 (35.8%) females and they were on ventilation for 3 to 63 days. A total of 83 VAE cases (12.9%) were identified including 25 cases of IVAC and 13 cases of possible VAP but no cases of probable VAP, which was likely due to the fact that quantified culture of respiratory samples and tests for Legionella and viruses were not widely used in China. The incidence of VAE was 13.9 per 1000 ventilator days. Patients with and without VAE had no significant differences in the composition of age and gender. However, patients with VAE had longer ICU length of stay (mean 18.9 vs 12.0 days, $p < 0.05$), longer hospital stay (mean 29.0 vs 22.7 days, $p < 0.05$) and longer duration on ventilator (mean 16.2 vs 8.3 days, $p < 0.05$) than those without VAE. The mortality rate (48.2%) of patients with VAE was also significantly higher than that (31.1%) of those without VAE, which was in contrast to a previous study in Australia that found no differences in mortality.

Conclusions: VAE is a simple algorithm that can be applied in the resources-limited settings although the diagnosis of probable VAP might be problematic due to the insufficient lab capability. VAE events were associated with significantly increased ICU length of stay, hospital stays, duration of mechanical ventilation and ICU mortality. As less than an half of ventilator days were eligible for VAE surveillance, studies on those on ventilation less than 3 days are warranted to justify the exclusion criteria.