

**P0556 Biofilm formation of hypervirulent *Klebsiella pneumoniae* isolates from Korea**Hyun Ah Kim\*<sup>1</sup>, Seong Yeol Ryu<sup>1</sup>, Ji Yeon Lee<sup>1</sup>, Miri Hyun<sup>1</sup><sup>1</sup> Dongsan Medical Center, Keimyung University, Daegu, Korea, Rep. of South

**Background:** The pathogenic influence of *K. pneumoniae* biofilm is reported in urinary tract infection and respiratory infection, particularly in indwelling devices associated infection. Recently invasive *Klebsiella pneumoniae* (*K. pneumoniae*), called hypervirulent *K. pneumoniae* was emerged in Asia Pacific region. but there is little known about biofilm formation of hypervirulent *K. pneumoniae*. The aim of this study is to evaluate the biofilm formation of *K. pneumoniae* and find out the relation of hypervirulence.

**Materials/methods:** The study was performed on 85 *K. pneumoniae* isolates recovered from different specimens collected from Keimyung university of Dongsan medical center from December 2013 through November 2015. Asymptomatic colonizers were excluded. Hypermucoviscous phenotype was confirmed with string test. Capsular serotypes, *rmpA*, *magA*, *kfu*, *allS* and *iutA* were identified using specific primers by polymerase chain reaction. The biofilm mass was determined using the microtiter plate assay measured by optical density (OD, 570nm).

**Results:** The interquartile range of the optical density for the biofilm mass was 0.4315 to 0.9994, and the average was 0.7853. The hypermucoviscous phenotype was found in 35 isolates (41.1%) among the 85 isolates. Biofilm mass was similar in hypervirulent and classical *K. pneumoniae*. But the OD was higher in K1/K2 serotype than non K1/K2 serotype (0.975 vs. 0.66, p=0.01). Twenty five out of 85 strains (29.4%) presented higher than average OD. The high biofilm producer was more related to K1/K2 serotype. Among the examined virulence genes, only *magA* were more presented in high biofilm producer group(13/25(52%) vs. 11/60(18%), p=0.009).

**Conclusions:** The biofilm mass were more related to K1/K2 serotype than hypermucoviscose phenotype. Because hypermucoviscose phenotype were heterogenous group, only 60% of string positive isolates were K1/K2 serotype. The *magA* gene is related to biofilm forming isolates. Clinical outcome and characteristics are not different according to biofilm formation. But, small number of isolates were evaluated, additional research is needed on large number of multicentric *K. pneumoniae* isolates for possible links between biofilm formation and hypervirulence.

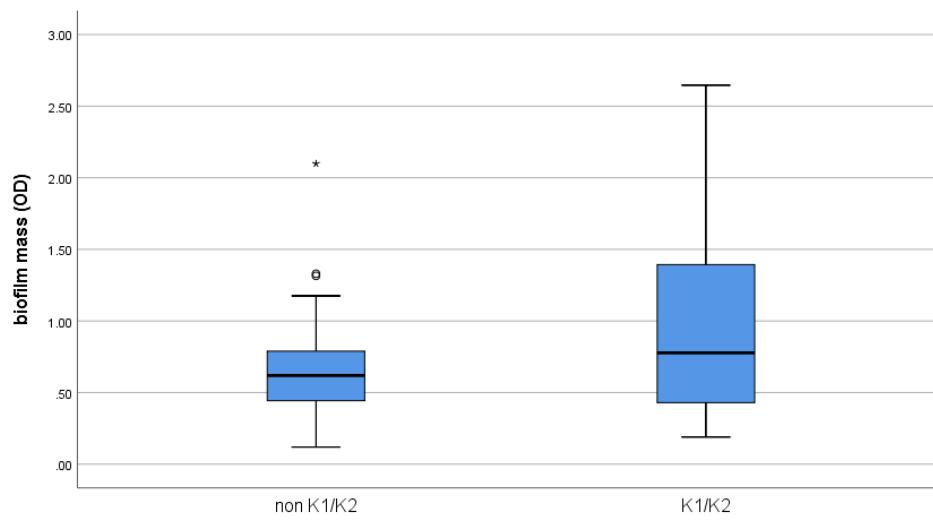


Figure 1. biofilm mass of *K. pneumoniae* according to K1/K2 serotype.

