ID-08

SERUM RESISTANCE AND LONG TERM SURVIVAL OF CAPSULAR SEROTYPE K1 *KLEBSIELLA PNEUMONIAE* AFTER NEUTROPHILS PHAGOCYTOSIS ARE CONTRIBUTED TO DEVELOPMENT OF LIVER ABSCESS AND DISTANT METASTASIS

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BACKGROUND/AIMS: *K. pneumoniae* capsular serotype K1 is significantly associated with liver abscess and the complication of endophthalmitis, especially in diabetic patients. This study was designed to better understand the role of specific capsular serotype of *K. pneumoniae* in the development of distant metastatic complications.

METHODS: The study was divided into *in vitro* cellular model and *in-vivo* animal model. The cellular model investigated interaction of *K. pneumoniae* with human serum and neutrophils. The animal model investigated diabetic BALB/c mice injected with neutrophils phagocytosed different serotypes of *K. pneumoniae.* Thirty-seven clinical strains of *K. pneumoniae* were enrolled in this study. Serum resistance and neutrophils killing were measured by bioassay and electronic microscope. In the *in-vivo* study, mortality rate of diabetic BALB/c mice and pathological findings were evaluated.

RESULTS: In serum killing assay, serotypes K1 isolates were more resistant to serum killing than non-K1/K2-isolates (80% vs. 29.4%, $p<0.01$). For neutrophils phagocytosis and killing assays, K1 isolates were significantly more resistant than non-K1/K2 isolates ($p<0.01$). Results of electronic microscope were compatible with bioassay. In the animal experiments, we found that survived phagocytosed K1 in neutrophils and serum resistance led to multiple abscesses.

DISCUSSION/CONCLUSONS: Serum resistance and long time survival within neutrophils of serotype K1 *K. pneumoniae* contribute to *K. pneumoniae* liver abscess with distant metastasis.

Keywords: *K. pneumoniae*, Capsular serotype K1, Liver abscess