

A STUDY OF THE CORRELATION BETWEEN ANTIBIOTIC-RESISTANCE AND PATHOGENICITY AMONG *SALMONELLA ENTERICA* SEROVAR CHOLERAESUIS AND TYPHIMURIUM ISOLATES IN TAIWAN

Chen, Y.H.¹, Chang, C.C.², Hsu, Y.M.¹

¹Department of Biological Science and Technology, China Medical University, Taichung, Taiwan; ²Graduate Institute of Microbiology and Public Health, National Chung Hsing University, Taichung, Taiwan

Objective : *Salmonella enterica* serovar Choleraesuis and Typhimurium infection in humans and animals cause severe health problem worldwide. Quinolone family is a common antibiotic used to treat *Salmonella* spp. Because of the frequency of quinolone used in treating infection, the number of quinolone resistance in *Salmonella* spp. became significantly increased. This study investigates the correlation between antibiotic-resistance and pathogenicity of *S. Choleraesuis* and Typhimurium isolates.

Method : The *S. Choleraesuis* and *S. Typhimurium* isolates were first screened for the resistance of quinolones (ciprofloxacin, enrofloxacin, nalidixic acid and norfloxacin). 50 isolates of *S. Choleraesuis* and 50 isolates of *S. Typhimurium* resistant to four quinolones were selected as the resistant group; 50 *S. Choleraesuis* isolates resistant to only nalidixic acid and 50 *S. Typhimurium* isolates sensitive to four quinolones were considered as sensitive group. These two groups were then subjected to test their pathogenicity by infecting RAW 264.7 macrophages. Invasion assay was used to evaluate the infection abilities of isolates. The NO production and TNF- α expression were indicators for cellular defense mechanisms against bacterial infection.

Results : Sensitive and resistant groups didn't have significant difference in neither the ability to infect macrophages nor the ability to stimulate NO and TNF- α expression in infected macrophages. All isolates were divided into high infection and low infection group based on the invasion ability. The NO production and TNF- α level of low infection group were 4.38 and 4.67 fold higher than those of high infection group respectively.

Conclusion : Even though high infection isolates have stronger ability in invading cells but with limited ability to stimulate host's defense response, which makes it easier for them to survive in host cells and might advantage high infection group to spread.

Key word: *S. Choleraesuis*, *S. Typhimurium*, Antibiotic-resistance, Pathogenicity