

The study of the correlation between antibiotic-resistance and pathogenicity of *Salmonella Choleraesuis* and *S. Typhimurium* isolates in Taiwan

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Salmonella is a genus of rod-shaped, Gram-negative bacteria. *Salmonella* infections are zoonotic and can be transferred between humans and nonhuman animals. Many infections are due to ingestion of contaminated food. Quinolone family is usually used to treat patients infected with *S. Choleraesuis* or *S. Typhimurium*. Because of the frequency of quinolone use in treating infection, the number of quinolone resistance in *Salmonella* spp. became significantly increased. This study investigates the correlation between antibiotic-resistance and pathogenicity. The *S. Choleraesuis* and *S. Typhimurium* isolates were first screened for the resistance of quinolones (ciprofloxacin, enrofloxacin, nalidixic acid and norfloxacin). A total of 50 isolates of *S. Choleraesuis* and 50 isolates of *S. Typhimurium* which are 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 cells, which is a kind of mouse macrophage cell line. Association assays were used to evaluate the infection abilities of isolates. The NO production and TNF- α expression were indicators for cellular defense mechanisms against bacterial infection. Our data shows that sensitive group and resistant group didn't have significant difference in infection abilities. And two groups on the NO and cytokine expression had no significant difference. According to the invasion ability, we then selected upper 50.5% as high infection group and rest of them as low infection group. The NO production and cytokine levels were compared between these groups. Low infection group could simulate 4.38 and 4.67 folds of NO production and TNF- α level by compared with high infection group. These data suggested that 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.

Keywords : *Salmonella*, resistance, quinolone