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EXTENDED-SPECTRUM CEPHALOSPORIN RESISTANT *ESCHERICHIA COLI* IN RETAIL MEAT IN TAIWAN

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Purpose: Our national surveillance program indicated an increasing trend of extended-spectrum cephalosporin (ESC) resistance in *E. coli* from outpatients. Since antimicrobial resistant bacteria in the food supply may be transferred to humans through direct or indirect contact, we investigated the prevalence of ESC-resistant *E. coli* in retail meat in Taiwan.

Methods: Meat samples were purchased in 2012 and 2013 from traditional markets in different regions of Taiwan. One gram of the meat was incubated in 10 ml buffered peptone water overnight and 10 µl of the broth was sub-cultured to MacConkey and ESBL selective agar plates. After species confirmation, antimicrobial susceptibility was determined using broth microdilution method. Extended-spectrum β-lactamase (ESBL) confirmatory test was performed and the presence of ESBL and AmpC β-lactamase genes (*bla_{ESBL}* & *bla_{AmpC}*) was determined by PCR.

Results: A total of 95 (48 in 2012 and 47 in 2013) meat samples were studied. ESC-resistant *E. coli* isolates were detected in 60 samples (63.2%), including 30.4%, 80%, and 64.9% of the 23, 35, and 37 beef, chicken and pork samples, respectively. A total of 85 non-duplicate ESC-resistant isolates were recovered. *bla_{ESBL}* was detected in 68 isolates from 50 (52.6%) meat samples, all carried CTX-M type (groups 1 and 9), and 8 samples contained both CTX-M group 1 and group 9 isolates. *bla_{AmpC}* was detected in 18 isolates from 18 (18.9%) samples, all were CMY-type. Four isolates carried both *bla_{CTX-M}* and *bla_{CMY}*.

Conclusions: CTX-M ESBL-producing *E. coli* is highly prevalent in retail meat, especially in chicken and pork, the most often consumed meat types in Taiwan. CMY-type AmpC-producing *E. coli* are also present in meat supplies. Since CTX-M and CMY are the most frequently identified β-lactamases in human clinical ESC-resistant *E. coli* isolates in Taiwan, further studies to determine the relatedness of the clinical and meat ESC-resistant isolates are warranted.

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STUDY ON THE HOMOLOGY OF *ACINETOBACTER BAUMANNII* BY ENTEROBACTERIAL REPETITIVE INTERGENIC CONSENSUS – POLYMERASE CHAIN REACTION

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Purpose: To investigate the homology of clinical isolated *Acinetobacter baumannii* and the epidemiology within the hospital and the possible transmission routes. in order to prevent transmission.

Methods: 73 isolates of non-repetitive multidrug resistant *Acinetobacter baumannii* were collected, the epidemiological typing was performed by enterobacterial repetitive intergenic consensus-polymerase chain reaction (ERIC-PCR).

Results: Genotypic analysis of these isolates revealed 8 distinct patterns, A (31), B (15), C (12), D (8), E (3), F (2), G (1), H (1). Pattern A was the dominating clone, distributed in different wards. ICU had 6 distinct patterns. Department of orthopedics had 4 distinct patterns, Emergency department had 5 distinct patterns. Internal medicine had 6 distinct patterns,. Surgical department had 3 distinct patterns.

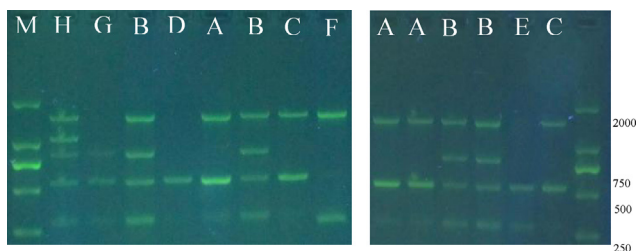


Fig.1 Molecular profile of *Acinetobacter baumannii* by ERIC-PCR.

Table 1 The distribution of different sub-types of *Acinetobacter baumannii*.

Ward	A	B	C	D	E	F	G	H
ICU	10	7	5	5	0	1	1	0
Orthopedics	10	4	5	1	0	0	0	0
Emergency	3	1	1	1	1	0	0	0
Internal Medicine	5	3	1	0	1	1	0	1
Surgical	3	0	0	1	1	0	0	0

Conclusions: *Acinetobacter baumannii* spread in hospital. *Acinetobacter baumannii* has spreading ability.

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THE EFFECT OF ANTIMICROBIAL STEWARDSHIP PROGRAMS ON HEALTH CARE ASSOCIATED INFECTION: A REGIONAL HOSPITAL EXPERIENCE

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Purpose: With the widespread use of antibiotics, management of multi-drug-resistant organisms (MDROs) has become difficult problem in clinical medical treatment. As this reason, Department of Disease Control, Ministry of Health and Welfare bring up an Antimicrobial Stewardship Programs (ASP) strategy plan to encourage hospitals to join in order to expect better control the growing worse condition on 2014. and also provide bonus to those excellent units. According to the surveillance regional data by Gan-dau hospital, MDROs rate were similar to the medical centers, revealed that it was necessary to modify Antimicrobial Stewardship tactics.

Methods: By participating in ASP plan in 2014, intervention period were 6 months, there are 5 key components of strict implementation: Hand decontamination pre-insertion, MDROs warning system, verify and reasonable use of antibiotics, correct collection specimen, active screen of MDRO patient for isolation, contact protection, and monitor environmental disinfection policy.

Results: The major findings of this plan compared with previous data revealed that MDROs rate: MRSA from 85.7% come down to 62.5%, VRE from 16.7% to 0.0%, CRAB from 60% to 40%, on the way of second line antibiotics daily define dose (DDD) decrease range : Teicoplanin 0.7%, Vancomycin 0.4%, and Imipenem 1.5%. Besides, contamination of specimen rate: blood from 5.2% to 3.6%, urine from 20.5% to 16.1%, and sputum from 18.5% to 10.6%. It also elevated clinical diagnosis process.

Conclusion: ASP have been shown to enhance the quality of medical care, reduce DDD, antimicrobial resistance rate, contamination of specimen rate and thus medical costs. ASP should be ongoing and supportive strategies should be available to continue to make them more effect.

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ANALYSIS THE RESULT OF SUSCEPTIBILITY TEST AND THE KPC GENE OF CRE IN A REGIONAL HOSPITAL OF SOUTH TAIWAN IN 2014

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Background

Analysis of Carbapenem-resistant Enterobacteriaceae (CRE) began since 1 March 2011 in a regional hospital of south Taiwan. Total 107 cases of CRE was found since January 2014 to 10 November 2014. There was 42 cases which showed KPC gene.

Method

CRE was defined as that the culture of specimens showed enterobacteriaceae which presented resistant or intermediate in any sensitivity test. CDC was then reported and the microbial will send to Laboratory for PCR analysis of KPC gene.

Report

The result of the data in our hospital revealed that Enterobacteriaceae was all negative to KPC gene test in which was susceptible to Imipenem. 42