117. Clinical and Microbiological Features of Klebsiella pneumoniae Liver Abscess Caused by Multidrug-Resistant Strains

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Background. The endemic Klebsiella pneumoniae liver abscess (KPLA) in East Asian countries are usually caused by hypervirulent strains. These hypervirulent strains are usually susceptible to commonly used antibiotics, aside from their intrinsic resistance to ampicillin. However, hypervirulent K. pneumoniae strains with multidrug-resistant (MDR) phenotype has been reported recently. We aim to investigate clinical and microbiological features of KPLA caused by MDR-resistant strains, and the evolution of drug-resistance in the resistant strain causing recurrent KPLA.

Methods. Patient KPLA were retrospectively identified at Taipei Veterans General Hospital during January 2013 to February 2018. Capsular genotypes were analyzed in all K. pneumoniae isolates. Antimicrobial-resistant mechanisms were determined for MDR isolates. Pulse-field gel electrophoresis (PFGE), conjugation experiment, and in vivo virulence were determined on the strain confirmed by the CAP Expert Carba-R assay was used to detect five carbapenemases: Klebsiella pneumoniae carbapenemase (KPC), New Delhi metallo-β-lactamase (NDM), Verona integron encoded metallo-β-lactamase (VIM), imipenemase (IMP), and oxacillinase-48-like carbapenemase (OXA-48). Detection of carbapenemase-encoding genes sometimes resulted in additional CSSs to ensure complete case detection. Non-KPC cases were combined for analysis.

Results. During April 1, 2017–April 1, 2018, MDH received reports of 278 incident cases of confirmed CP-CROs. Of these, 16 (6%) expressed non-KPC carbapenemases. The 7 (3%) cases with healthcare contacts prompting CSSs led to screening of 132 first-round contacts, with additional CP-CROs identified in 13 (10%), all of which had KPC. Of these, 12 (92%) resided in ventilator units of skilled nursing facilities (vSNFs). In the first-round CSS at one vSNF, 64% of screened contacts were positive for KPC, which had not been identified in the vSNF. The upcar Numbers of identified cases and sequential follow-up CSSs at the vSNF resulted in screening of a total of 72 unique patients; 38 (53%) were KPC-positive. Of these 38 cases, 32 (89%) were previously unidentified and were placed on contact precautions if not already on them. Staff were re-trained in infection prevention (IP) techniques, and staff and KPC-positive patients were cohorted.

Conclusion. Detection of CP-CROs that express non-KPC carbapenemases in Maryland is rare, and transmission of these carbapenemases has not been identified. However, CSSs identified previously unknown cases of KPC, most commonly in vSNFs, demonstrating the utility of CSSs to detect CP-CROs, and resulting in important IP interventions.

Disclosures. All authors: No reported disclosures.

117. Risk Factors for ESBL Enterobacteriaceae Colonization Identified by Universal Admission Screening in a London Teaching Hospital

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Background. Individual risk factors such as antibiotic use and foreign travel are typically associated with ESBL-producing Enterobacteriaceae (ESBL-E) carriage. Few studies have evaluated variations in community demographics or social and material deprivation as risk factors for ESBL-E carriage.

Methods. From five tertiary hospitals, 24 isolates (14 CPE and 10 NCP-CRE) were KPC-positive. Of these 38 cases, 32 (89%) were previously unidentified and were placed on contact precautions if not already on them. Staff were re-trained in infection prevention (IP) techniques, and staff and KPC-positive patients were cohorted.

Results. During April 1, 2017–April 1, 2018, MDH received reports of 278 incident cases of confirmed CP-CROs. Of these, 16 (6%) expressed non-KPC carbapenemases. The 7 (3%) cases with healthcare contacts prompting CSSs led to screening of 132 first-round contacts, with additional CP-CROs identified in 13 (10%), all of which had KPC. Of these, 12 (92%) resided in ventilator units of skilled nursing facilities (vSNFs). In the first-round CSS at one vSNF, 64% of screened contacts were positive for KPC, which had not been identified in the vSNF. The upcar Numbers of identified cases and sequential follow-up CSSs at the vSNF resulted in screening of a total of 72 unique patients; 38 (53%) were KPC-positive. Of these 38 cases, 32 (89%) were previously unidentified and were placed on contact precautions if not already on them. Staff were re-trained in infection prevention (IP) techniques, and staff and KPC-positive patients were cohorted.

Conclusion. Detection of CP-CROs that express non-KPC carbapenemases in Maryland is rare, and transmission of these carbapenemases has not been identified. However, CSSs identified previously unknown cases of KPC, most commonly in vSNFs, demonstrating the utility of CSSs to detect CP-CROs, and resulting in important IP interventions.

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1178. A Multicenter Prospective Study of Clinical and Molecular Epidemiological Analysis of Carbenem-Resistant Enterobacteriaceae (CRE) and Carbapenemase-Producing Enterobacteriaceae (CPE) in Japan

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Background. Data from a multicenter study on CRE in Japan are limited. Comparative analyses of carbapenemase-producing Enterobacteriaceae (CPE) and non-carbapenemase-producing CRE (NCP-CRE) have not yet been conducted.

Methods. Cases with CPE or CRE (defined as (1) meropenem [MPM] MIC, ≥2 mg/L or (2) imipenem [IPM] MIC, ≥2 mg/L and ceftazidime MIC, ≥24 mg/L (CLSI criteria)] were included from August 2016 to May 2017. PCR was used to detect carbapenemase.

Results. From five tertiary hospitals, 24 isolates (14 CPE and 10 NCP-CRE) were collected from 22 patients. Of the 10 NCP CRL, seven were Enterobacter aerogenes and three were Enterobacter cloacae of the 14 CPE; five were Klebsiella pneumoniae; 3, E. cloacae; 3, E. coli; 2, Citrobacter freundii; and 1, E. aerogenes. CPE were frequently isolated from the urine (5 [42%] and spputum (3 [25%]) and NCP-CRE from spputum (4 [40%]), bile (3 [30%]), and urine (2 [20%]). Cases with CPE were older with more frequent use of urinary catheter and/or NG tube than
NCP-CRE (table). The 30-day mortality or length of hospital stay (LOS) did not differ between the two groups. Majority (n = 12) of CPE were identified to carry bla_{TEM} (PMK MIC, ≥2 mg/L), and two CPE were positive for bla_{PER}, (PMK MIC, ≤1 mg/L). All NCP-CRE had PMK MIC of ≥2 mg/L. 7 (70%) of MPM had PMK MIC of ≤1 mg/L. Resistance to amikacin (AMK) and levofloxacin (LFX) was noted in one and five CPE, respectively, whereas all NCP-CRE were sensitive, and nine bla_{TEM} and 1 bla_{PER} were transferable by conjugation.

**Conclusion.** CPE and NCP-CRE had different clinical characteristics. Non-β-lactam treatment options were more available for NCP-CRE than CPE. CPE and NCP-CRE might require different control strategies.

### Table: Comparison of CPE and NCP-CRE, n(%)

| Parameter                  | CPE (n = 12) | NCP-CRE (n = 10) | P-value |
|----------------------------|--------------|------------------|---------|
| Agea                       | 80 (78–93)   | 68 (63–73)       | 0.04    |
| Male                       | 5 (42)       | 8 (80)           | 0.1     |
| Nursing home residence     | 4 (33)       | 0                | 0.1     |
| Charlson Comorbidity indexa| 3 (1–5)      | 2 (2–5)          | 0.92    |
| Dependent functional status| 9 (75)       | 3 (30)           | 0.06    |
| Urinary catheter           | 9 (75)       | 2 (20)           | 0.03    |
| NG tube                    | 8 (67)       | 0                | <0.01   |
| Infection (not colonization)| 3 (27)       | 3 (30)           | >0.99   |
| Polymicrobial isolation    | 7 (59)       | 9 (90)           | 0.16    |
| Carbapenem exposureb       | 3 (25)       | 2 (20)           | >0.99   |
| Any antimicrobial exposureb| 10 (83)      | 8 (80)           | >0.99   |
| 30-day mortality           | 1 (10)       | 0                | >0.99   |
| LOS after isolation, days  | 31 (10–59)   | 22 (8–45)        | 0.39    |

aMedian (IQR) and b ≥ 1 month.

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1179. Incidence of Bacteremia and Bacteriuria With Antibiotic-Resistant *Enterobacteriaceae* After Transrectal Ultrasound-Guided Biopsy of the Prostate (TRUSBP)

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**Background.** Infection with *Escherichia coli* after TRUSBP is common, but other *Enterobacteriaceae* also occur. In the absence of microbiological data, prophylaxis with co-trimoxazole (TMP-SMX) or fluoroquinolones (FQ) is usually prescribed. We estimated the incidence of bacteremia and bacteriuria after TRUSBP with distinct species of *Enterobacteriaceae* and their rate of resistance to common antibiotics.

**Methods.** Using Veterans Healthcare Administration (VHA) databases, we identified patients undergoing TRUSBP between January 1, 2013 and December 31, 2017. We determined the incidence of *Enterobacteriaceae* isolated from urine and blood cultures obtained within 30 days of TRUSBP. Using microbiology data from VHA, we determined rates of resistance to TMP-SMX, FQ (ciprofloxacin as marker), ESC (ceftriaxone as marker), and carbapenems (Carb) (ertapenem as marker).

**Results.** Overall, 377 (0.3%) and 1,739 (1.4%) of 126,761 TRUSBPs were complicated by bacteremia or bacteriuria with *Enterobacteriaceae*, respectively. *E. coli* was predominant (91% of blood and 81% in urine). Rates of FQ resistance were high in *Klebsiella* (80% in blood and 11% in urine) but exceeded 60% in *E. coli*. In general, TMP-SMX resistance exceeded 30%. Of note, 16.6% of blood and 11% of urine *Enterobacteriaceae* were resistant to ESC, while Carb-resistance was rare.

**Conclusion.** FQ and ESC-resistant *Enterobacteriaceae* are prevalent in bacteremia and bacteriuria after TRUSBP. Antibiotics used for prophylaxis and empirical treatment are likely to be ineffective. The prevention and management of TRUSBP-related infections should include microbiology-guided approaches.