**Mortality associated with third generation cephalosporin-resistance in *Enterobacteriaceae* infections: a multicenter cohort study in Southern China**

**SUPPLEMENTARY TABLES**

**Supplementary Table S1**

Distribution of indicator pathogens resistance to antimicrobial markers in three tertiary-care hospitals (n = 2,777)

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicator pathogens** | **AMR markers** | **n tested** | **Resistance** |
|  | **n** | **%** | **n** | **Proportion** | **95% CI** |
| *Escherichia coli* | 1,583 | 57.0% | Ceftriaxone | 1,554 | 704 | 45.3% | 42.8% - 47.8% |
| Ciprofloxacin | 1,535 | 658 | 42.9% | 40.4% - 45.4% |
| Gentamicin | 1,532 | 553 | 36.1% | 33.7% - 38.6% |
| Amikacin | 1,532 | 34 | 2.2% | 1.5% - 3.1% |
| Piperacillin-tazobactam | 1,532 | 31 | 2.0% | 1.4% - 2.9% |
| Imipenem | 1,555 | 3 | 0.2% | 0.04% - 0.6% |
| *Klebsiella pneumoniae* | 625 | 22.5% | Ceftriaxone | 596 | 182 | 30.5% | 26.9% - 34.4% |
| Ciprofloxacin | 585 | 123 | 21.0% | 17.8% - 24.6% |
| Gentamicin | 580 | 97 | 16.7% | 13.8% - 20.0% |
| Amikacin | 580 | 30  | 5.2% | 3.5% - 7.3% |
| Piperacillin-tazobactam | 578 | 54 | 9.3% | 7.1% - 12.0% |
| Imipenem | 598 | 20 | 3.3% | 2.1% - 5.1% |
| *Klebsiella spp.* | 42 | 1.5% | Ceftriaxone | 42 | 8 | 19.1% | 8.6% - 34.1% |
| Ciprofloxacin | 42 | 4 | 9.5% | 2.7% - 22.6% |
| Gentamicin | 42 | 4 | 9.5% | 2.7% - 22.6% |
| Amikacin | 42 | 0 | N/A | N/A |
| Piperacillin-tazobactam | 42 | 1 | 2.4% | 0.06% - 12.6% |
| Imipenem | 42 | 1 | 2.4% | 0.06% - 12.6% |
| *Enterobacter spp.* | 166 | 6.0% | Ceftriaxone | 163 | 52 | 31.9% | 24.8% - 39.6% |
| Ciprofloxacin | 157 | 16 | 10.2% | 5.9% - 16.0% |
| Gentamicin | 156 | 16 | 10.3% | 6.0% - 16.1% |
| Amikacin | 156 | 1 | 0.6% | 0.02% - 3.5% |
| Piperacillin-tazobactam | 156 | 21 | 13.5% | 8.5% - 19.8% |
| Imipenem | 163 | 6 | 3.7% | 1.4% - 7.8% |
| *Citrobacter spp.* | 43 | 1.6% | Ceftriaxone | 43 | 9 | 20.9% | 10.0% - 36.0% |
| Ciprofloxacin | 42 | 4 | 9.5% | 2.7% - 22.6% |
| Gentamicin | 42 | 3 | 7.1% | 1.5% - 19.5% |
| Amikacin | 42 | 1 | 2.4% | 0.06% - 12.6% |
| Piperacillin-tazobactam | 42 | 4 | 9.5% | 2.7% - 22.6% |
| Imipenem | 43 | 3 | 7.0% | 1.5% - 19.1% |
| Other Enterobacteriaceae species | 318 | 11.5% | Ceftriaxone | 203 | 41 | 20.2% | 14.9% - 26.4% |
| Ciprofloxacin | 201 | 60 | 29.9% | 23.6% - 36.7% |
| Gentamicin | 198 | 59 | 29.8% | 23.5% - 36.7% |
| Amikacin | 194 | 2 | 1.0% | 0.1% - 3.7% |
| Piperacillin-tazobactam | 199 | 5 | 2.5% | 0.8% - 5.8% |
| Imipenem | 51 | 3 | 5.9% | 1.2% - 16.2% |
| Overall | 2,777 | 100% | Ceftriaxone | 2,601 | 996 | 38.3% | 36.4% - 40.2% |
| Ciprofloxacin | 2,562 | 865 | 33.8% | 31.9% - 35.6% |
| Gentamicin | 2,550 | 732 | 28.7% | 27.0% - 30.5% |
| Amikacin | 2,546 | 68 | 2.7% | 2.1% - 3.4% |
| Piperacillin-tazobactam | 2,549 | 116 | 4.6% | 3.8% - 5.4% |
| Imipenem | 2,452 | 36 | 1.5% | 1.0% - 2.0% |

**Supplementary Table S2**

Multivariable competing risk survival analysis for **90-day** in-hospital mortality of patients infected by *Enterobacteriaceae*

|  |  |  |
| --- | --- | --- |
| **Risk factor** | **Cause-specific hazards** | **Sub-distribution hazards** |
| **In hospital death** | **Discharge alive** | **In hospital death** |
| **csHR** | **95%CI** | **P** | **csHR** | **95%CI** | **P** | **sHR** | **95%CI** | **P** |
| **Male sex** | 1.40 | 0.74 - 2.68 | 0.303 | 0.91 | 0.83 – 0.99 | 0.036 | 1.49 | 0.75 - 2.97 | 0.254 |
| **Age > 65 years** | 1.36 | 0.75 - 2.45 | 0.311 | 0.64 | 0.58 - 0.69 | <0.001 | 1.56 | 0.86 - 2.85 | 0.145 |
| **ICU admission** | 1.92 | 0.88 - 4.18 | 0.102 | 0.44 | 0.35 - 0.55 | <0.001 | 2.98 | 1.21 - 7.34 | 0.018 |
| **Origin of infection** |  |  |  |  |  |  |  |  |  |
| Community  | 1.00 | - | - | 1.00 | - | - | 1.00 | - | - |
| Healthcare | 1.57 | 0.85 - 2.89 | 0.150 | 0.53 | 0.47 - 0.59 | <0.001 | 2.09 | 1.13 - 3.87 | 0.019 |
| **Site of infection** |  |  |  |  |  |  |  |  |  |
| Lower respiratory tract | 2.48 | 0.99 - 6.20 | 0.051 | 0.80 | 0.70 - 0.91 | 0.001 | 2.79 | 1.02 - 7.60 | 0.045 |
| Urinary tract | 0.44 | 0.14 - 1.43 | 0.173 | 0.85 | 0.77 - 0.95 | 0.004 | 0.49 | 0.15 - 1.62 | 0.241 |
| Bloodstream | 5.09 | 1.98 - 13.05 | 0.001 | 0.89 | 0.76 - 1.05 | 0.162 | 5.06 | 1.97 - 12.99 | 0.001 |
| Other | 1.00 | - | - | 1.00 | - | - | 1.00 | - | - |
| **3rd generation Cephalosporin** |  |  |  |  |  |  |  |  |  |
| Susceptible | 1.00 | - | - | 1.00 | - | - | 1.00 | - | - |
| Resistant | 0.80 | 0.43 - 1.48 | 0.483 | 0.84 | 0.77 - 0.92 | <0.001 | 0.90 | 0.49 - 1.67 | 0.748 |

Note: csHR: cause-specific hazard ratio; sHR: sub-distribution hazard ratio; 95% CI: 95% confidence interval