Changing Genotypic Distribution, Antimicrobial Susceptibilities, and Risk Factors of Urinary Tract Infection Caused by Carbapenemase-Producing *Pseudomonas aeruginosa*

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Supplemental Data Table S1. Distribution of 1,652 *Pseudomonas aeruginosa* strains according to the year of isolation, type of sample, and susceptibility to carbapenems

Sample	2015			2016			2017			2018			2019			2020			Total
	Cs	Cns-nCP	Cns-CP	Cs	Cns-nCP	Cns-CP	Cs	Cns-nCP	Cns-CP	Cs	Cns-nCP	Cns-CP	Cs	Cns-nCP	Cns-CP	Cs	Cns-nCP	Cns-CP	
Respiratory tract	105	37	4	73	32	0	86	39	1	108	26	2	97	35	3	96	29	8	781
Urine	47	5	78	42	12	42	45	13	29	41	9	19	25	7	26	27	11	25	503
Wound	15	4	3	15	2	0	16	2	0	25	4	0	15	7	0	12	4	3	127
Tissue	4	4	0	8	1	0	14	0	1	6	2	0	8	0	0	6	3	0	57
Pus	7	4	0	6	0	2	10	0	1	6	0	0	3	1	0	4	0	0	44
Bile juice	8	1	1	5	2	1	3	0	0	4	3	0	3	1	1	4	0	1	38
Whole blood	6	0	1	3	1	0	3	1	1	5	1	2	7	1	1	2	0	0	35
Cut down tip	1	0	1	1	1	0	10	0	0	4	1	0	0	0	0	1	0	1	21
Others	7	2	0	6	3	0	3	1	0	6	0	0	10	3	0	5	0	0	46
Total	200	57	88	159	54	45	190	56	33	205	46	23	168	55	31	157	47	38	1,652

Abbreviations: Cs, carbapenem-susceptible; Cns-CP, carbapenem-non-susceptible and carbapenemase-producing; Cns-nCP, carbapenem-non-susceptible and non-carbapenemase-producing

Supplemental Data Table S2. Distribution of patients with *Pseudomonas aeruginosa* detected in urine samples according to the presence of UTI

Variable	UTI (N = 321)	Non-UTI (N = 178)
Age	71.0 (58.0 – 80.0)	70.5 (58.0 – 79.0)
Sex		
Male	202 (62.9)	106 (59.6)
Female	119 (37.1)	72 (40.4)
Comorbidity		
Pulmonary disease	91 (28.3)	40 (22.5)
DM	102 (31.8)	68 (38.2)
Susceptibility to carbapenem		
CsPA	147 (45.8)	79 (44.4)
Cns-nCPPA	32 (10.0)	24 (13.5)
Cns-CPPA	142 (44.2)	75 (42.1)
Carbapenem use	108 (33.6)	35 (19.7)
Imipenem	1 (0.3)	2 (1.1)
Meropenem	27 (8.4)	9 (5.1)
Doripenem	47 (14.6)	16 (9.0)
Ertapenem	57 (17.8)	13 (7.3)
Laboratory finding		
Procalcitonin level (ng/mL)	0.1 (0.1 – 0.5)	0.1 (0.0 – 0.5)
CRP level (mg/L)	38.8 (16.3 – 75.7)	28.8 (8.6 – 63.6)
WBC count (10^9/L)	8.0 (5.9 – 12.0)	7.5 (5.9 – 9.8)
NLR	5.2 (3.0 – 10.1)	4.0 (2.4 – 6.9)
Glucose level (mg/dL)	111.0 (93.9 – 135.0)	116.0 (99.2 – 140.8)
LD level (IU/L)	223.5 (184.8 – 284.5)	204.0 (165.2 – 270.8)

Data are presented as N (%) for categorical variables or median (1st – 3rd quartile) for continuous variables.

Abbreviations: Cns-CPPA, carbapenem-non-susceptible and carbapenemase-producing *P. aeruginosa*; Cns-nCPPA, carbapenem-non-susceptible and non-carbapenemase-producing *P. aeruginosa*; CRP, C-reactive protein; CsPA, carbapenem-susceptible *P. aeruginosa*; DM, diabetes mellitus; NLR, neutrophil-to-lymphocyte ratio; LD, lactate dehydrogenase; UTI, urinary tract infection; WBC, white blood cell
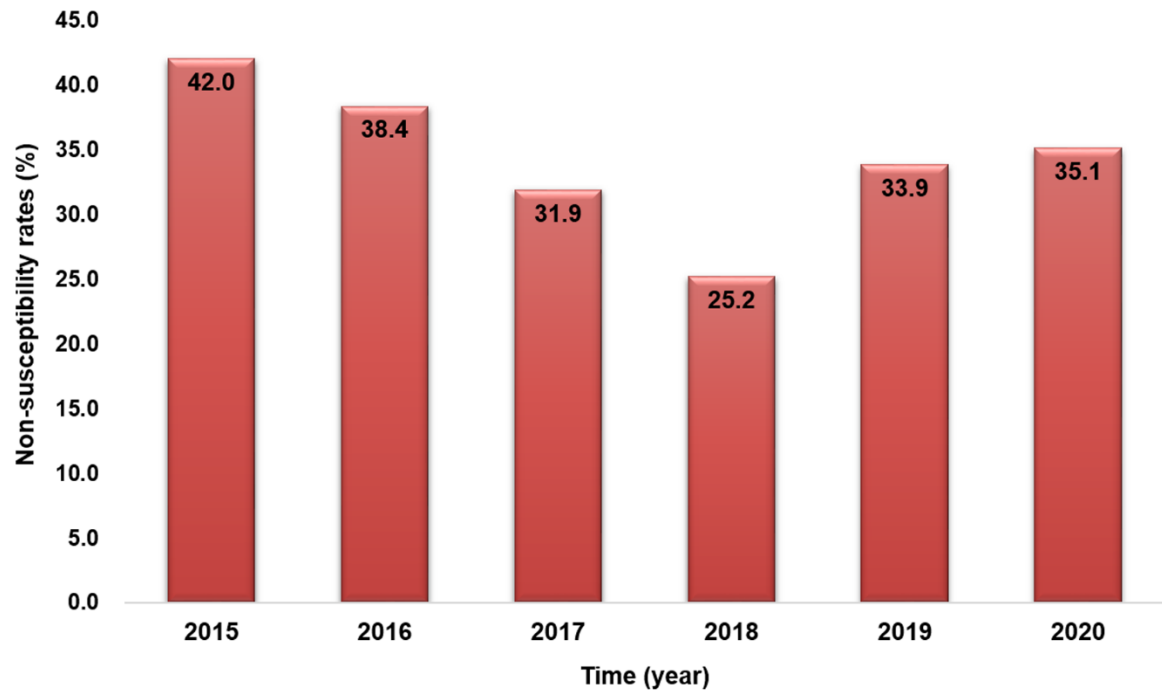
Supplemental Data Table S3. Distribution of patients with *Pseudomonas aeruginosa* detected in urine samples according to mortality

Variable	Non-survivors (N = 43)	Survivors (N = 456)
Age	76.0 (67.0 – 82.0)	70.0 (57.0 – 79.0)
Sex		
Male	19 (44.2)	289 (63.4)
Female	24 (55.8)	167 (36.6)
Comorbidity		
Pulmonary disease	18 (41.9)	113 (24.8)
DM	23 (53.5)	147 (32.2)
ICU stay	36 (83.7)	232 (50.9)
Susceptibility to carbapenem		
CsPA	12 (27.9)	214 (46.9)
Cns-nCPPA	8 (18.6)	48 (10.5)
Cns-CPPA	23 (53.5)	194 (42.5)
Carbapenem use	25 (58.1)	118 (25.9)
Imipenem	0 (0.0)	3 (0.7)
Meropenem	9 (20.9)	27 (5.9)
Doripenem	10 (23.3)	53 (11.6)
Ertapenem	11 (25.6)	59 (12.9)
Laboratory finding		
Procalcitonin level (ng/mL)	0.1 (0.0 – 8.4)	0.1 (0.1 – 0.4)
CRP level (mg/L)	68.5 (33.1 – 110.7)	32.7 (13.3 – 67.1)
WBC count (10^9/L)	10.0 (6.9 – 16.6)	7.7 (5.9 – 10.7)
NLR	10.7 (4.8 – 19.5)	4.4 (2.7 – 8.2)
Glucose level (mg/dL)	129.0 (104.2 – 169.8)	111.0 (95.9 – 134.1)
LD level (IU/L)	245.0 (194.0 – 333.2)	214.5 (174.0 – 273.1)

Data are presented as N (%) for categorical variables or median (1st – 3rd quartile) for continuous variables.

Abbreviations: Cns-CPPA, carbapenem-non-susceptible and carbapenemase-producing *P. aeruginosa*; Cns-nCPPA, carbapenem-non-susceptible and non-carbapenemase-producing *P.*

aeruginosa; CRP, C-reactive protein; CsPA, carbapenem-susceptible *P. aeruginosa*; DM, diabetes mellitus; ICU, intensive care unit; NLR, neutrophil-to-lymphocyte ratio; LD, lactate dehydrogenase; WBC, white blood cell

Supplemental Data Figure S1. Carbapenem non-susceptibility rates of *Pseudomonas aeruginosa* isolates from 2015 to 2020.