



Background

Roseomonas species are slow-growing Non-fermentative Gram-negative coccobacillus, and were first reported in 1993. *Roseomonas* have been isolated from environmental sources and can cause bacteremia in humans, especially in immunocompromised patients. Since these species were difficult to isolate and infections with these species are not common, there are only a few studies on their characteristics. Therefore, we aim to expand our knowledge of clinical features, antimicrobial susceptibility patterns, and treatment outcomes for *Roseomonas* human infections.

Method

From January 2006 to March 2022, patients with *Roseomonas* isolated from blood and other sources were extracted from three hospitals in South Korea. Underlying conditions, clinical manifestations, antimicrobial susceptibility patterns, and outcomes were retrospectively reviewed through the medical records.

Conclusion

Although not common, *Roseomonas* species can cause bacteremia and even death, especially in immunocompromised individuals. Since *Roseomonas* are challenging to isolate and generally show resistance to antibiotics commonly used for Gram-negative bacterial infections, careful attention is warranted in selecting antibiotics.

Result

During the study period, a total of 39 patients (46.1% were male) with *Roseomonas* infections were included. The median age was 50 (interquartile range, 33.5-62.5) years old, and seven patients (17.9%) were under age 18. The clinical features are summarized in Table 1.

Roseomonas mucosa (n=16) was identified in 16 cases and was the most common species, followed by *Roseomonas rosea*. (n =1)

Of the 39 patients, 13 patients (33.3%) had malignancies, four patients (10.3%) had neutropenia with an absolute neutrophil count of fewer than 1000 cells/mm³, and eight patients (20.5%) were infected in hospital settings.

Twenty-eight patients (71.8%) were symptomatic, with fever (39.5%) being the most common symptom. (Figure 1)

Blood isolates were the most common (26 cases), followed by blood culture through the central catheter (3 cases), soft tissue (3 cases), and cerebrospinal fluid (2 cases). Twenty-one cases (53.8%) were cultured after 48 hours of incubation, and co-infection with other bacteria was identified in nine cases (20.5%). (Figure 2)

Amikacin showed a high susceptible rate (95.7%) to isolated *Roseomonas*. Tigecycline and minocycline also showed high susceptible rates (92.9% and 93.3%, respectively). The susceptible rate of ciprofloxacin was 75.0%, and that of levofloxacin was 85.0%.

On the other hand, the susceptible rate of piperacillin-tazobactam (5.9%) and meropenem (47.6%) were below 50%. There were two cases (5.1%) of in-hospital mortality. (Figure 3)

Table 1. Clinical characteristics

Demographics	Total patients (N=39)
Age, years, median (IQR)	50 (33.5 - 63.5)
Male sex, n (%)	18 (46.1)
Comorbidities No. (%)	
Malignancy	13 (33.3)
Hypertension	12 (30.8)
Cerebro-vascular disease	7 (17.9)
Diabetes mellitus	5 (12.8)
Chronic kidney disease	3 (7.7)
Coronary artery disease	2 (5.1)
Autoimmune disease	2 (5.1)
Liver cirrhosis	1 (2.6)
Chronic lung disease	0 (0.0)
Source of isolation No.(%)	
Blood	26(66.7)
Catheter blood	3 (7.7)
Soft tissue	3 (7.7)
Cerebrospinal fluid	2 (5.1)
Prostate	1 (2.6)
Peritoneal fluid	1 (2.6)
Urine	1 (2.6)
Cervix	1 (2.6)
Catheter tip	1 (2.6)
Laboratory findings at the time of culture	
White blood cell 10 ³ /μL	7.73 (5.51-12.61)
Absolute neutrophil count 10 ³ /μL	5.40 (3.02-10.52)
C-reactive protein mg/L	18.4 (2.5-112.5)
Symptoms No. (%)	
Fever	14 (39.5)
Respiratory	11 (28.2)
Gastrointestinal	7 (17.9)
Soft tissue	5 (12.8)
Hepatobiliary	4 (10.3)
Neurologic	4 (10.3)
Genitourinary	2 (5.1)
No Symptoms	5 (12.8)
Co infection No.(%)	
Bacteria	8 (20.5)
Fungus	2 (5.1)
Virus	1 (2.6)
NTM	1 (2.6)
Tuberculosis	0 (0.0)

Catheter blood : blood Culture through the central catheter ;

NTM : Non Tuberculosis Mycobacterium

Figure1. Symptoms (Number of cases)

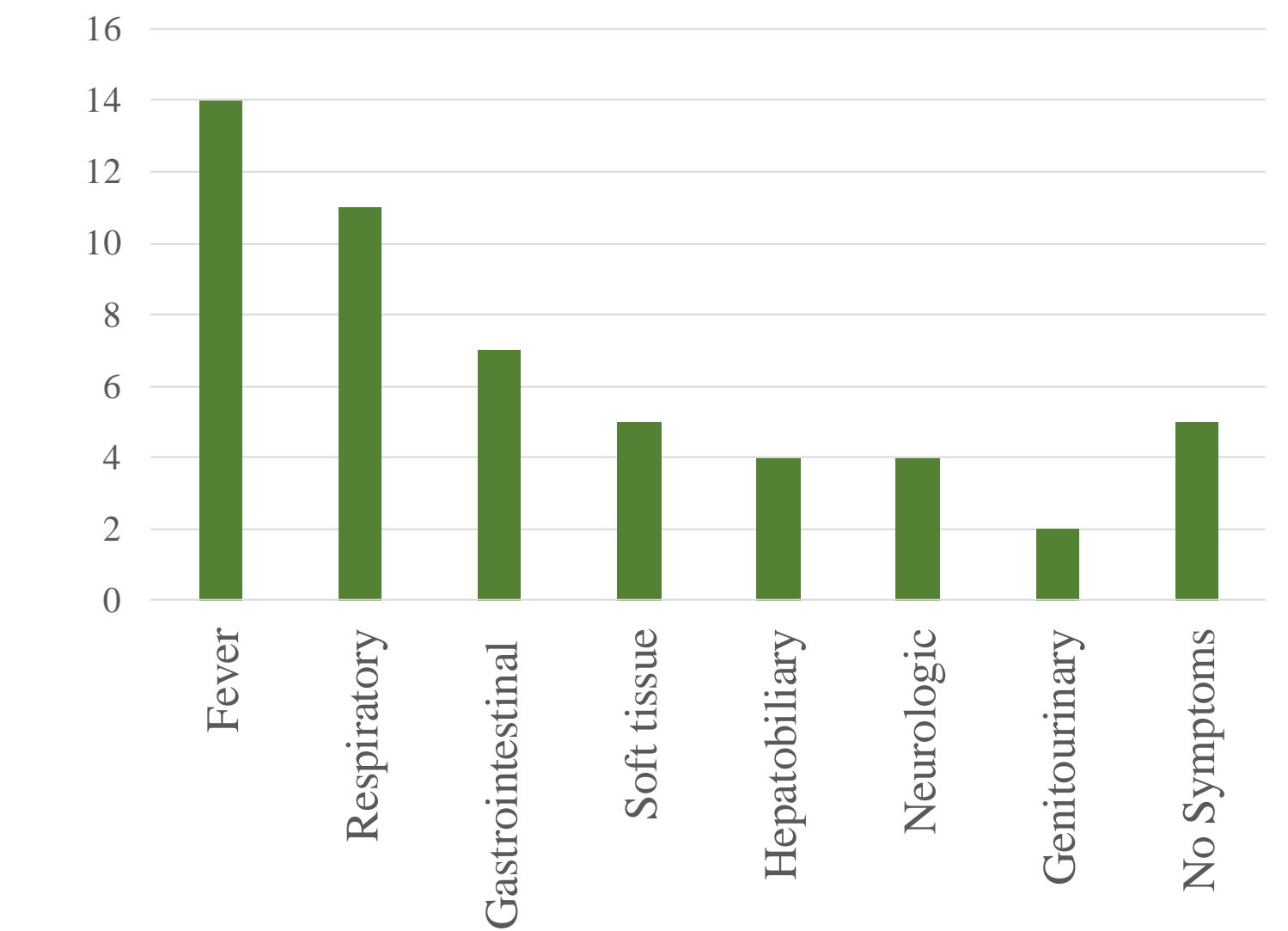


Figure2. Source of isolation (Number of cases)

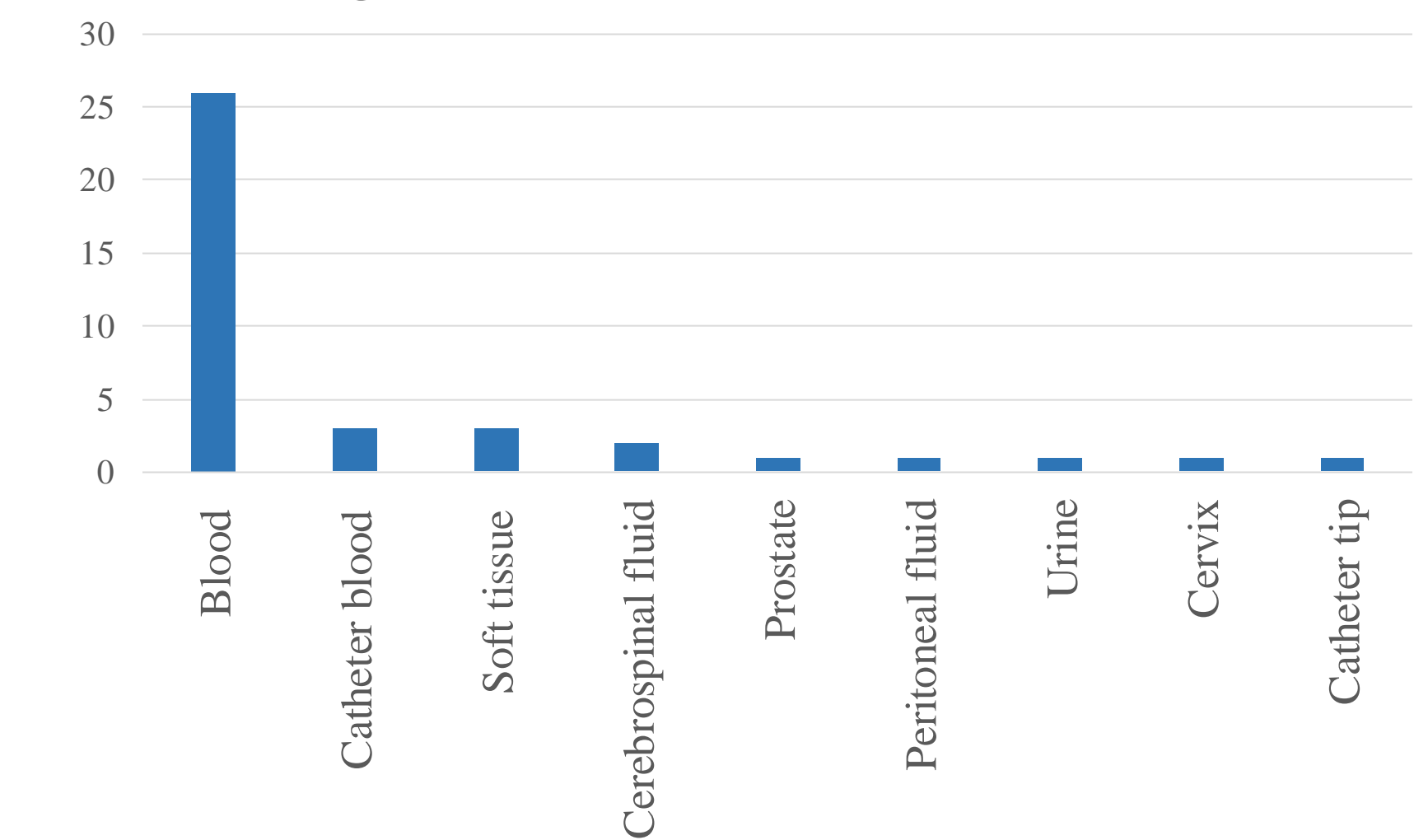


Figure3. Drug susceptible rate (%)

