Table S1. Recommended dosage and administration schedule of meropenem a

|  |  |  |
| --- | --- | --- |
| Creatinine clearance (mL/min) | Dose | Frequency |
| >50 | 1 g | Every 8 hours |
| ca. 50-25 | 1 g | Every 12 hours |
| ca. 25-10 | 0.5 g | Every 12 hours |
| <10 | 0.5 g | Every 24 hours |
| Hemodialysis | 0.5 g | Every 24 hours (administered after dialysis on dialysis days) |
| Continuous ambulatory peritoneal dialysis | 0.5 g | Every 24 hours |
| Continuous renal replacement therapy | 1 g | Every 12 hours |

Non-recommended schedules are those that deviate from the recommended dosages and schedules.

For conditions other than pediatric meningitis: Administer 30–60 mg/kg per day in three divided doses (adjusting as needed based on age and symptoms). In severe or refractory infections, the dosage may be increased to 120 mg/kg per day. However, the daily maximum should not exceed 3 g in adults.

For pediatric meningitis: Administer 120 mg/kg per day in three divided doses (adjusting as needed based on age and symptoms). However, the daily maximum should not exceed 6 g in adults.

For pediatric febrile neutropenia: Administer 120 mg/kg per day in three divided doses (adjusting as needed based on age and symptoms). However, the daily maximum should not exceed 3g in adult

aIn cases of meningitis, all doses are doubled.

Table S2. Recommended Dosage and Administration Schedule of Doripenem

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Ccr (mL/min) | Daily Dose Corresponding to the Daily Dose for Patients with Normal Renal Function (Ccr ≥ 70) | | | | | | | |
| Dose | Frequency | Dose | Frequency | Dose | Frequency | Dose | Frequency |
| 70 > Ccr ≥ 50 | 0.25 g | Every 12 hours | 0.25 g | Every 8-12 hours | 0.5 g | Every 8-12 hours | 1.0 g | Every 12 hours a |
| 50 > Ccr ≥ 30 | 0.25 g | Every 12 hours | － | － | 0.25 g or 0.5 g | Every 8-12 hours | 0.5 g | Every 8 hours |
| 30 > Ccr c | － | － | 0.25 g | Every 12 hours b | － | － | 0.25 g | Every 8 hours b |

Ccr, creatinine clearance.

Non-recommended schedules are those that deviate from the recommended dosages and schedules.

For pediatric patients: Administer 60 mg/kg per day in three divided doses (adjusting as needed based on age and symptoms). In severe or refractory infections, the dosage may be increased up to 120 mg/kg per day. However, the daily maximum should not exceed 3 g in adults.

a It is desirable to avoid administering a total of 1.0 g in every 8 hours.

b Administer with caution in patients with low body weight, prioritizing safety.

c For patients with Ccr < 10, consider switching to alternative medications in the absence of data.

Table S3. Recommended Dosage and Administration Schedule of imipenem/cilastatin

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ccr (ml/min) | Adjustment Based on Dosage | | Adjustment Based on Dosing Interval | |
| Dose | Frequency | Dose | Frequency |
| >50 a | 0.5g | Every 12 hours | 0.5g | Every 12 hours |
| 50 to 30 | 0.25g-0.5g | Every 12 hours | 0.5g | Every 12-24 hours |
| 30 to 10 b | 0.125g-0.25g | Every 12 hours | － | － |

Ccr, creatinine clearance.

Non-recommended schedules are those that deviate from the recommended dosages and schedules.

For pediatric patients: Administer 30–80 mg/kg per day in three to four divided doses (adjusting as needed based on age and symptoms). In severe or refractory infections, the dosage may be increased up to 100 mg/kg per day.

a For severe or refractory infections, the daily dose can be increased to 2.0 g (1.0 g every 12 hours).

b Because of the risk of convulsive seizures in patients with renal impairment, consider switching to other medications.

Table S4. Criteria for categorizing abnormal differences in laboratory values as adverse events

|  |  |
| --- | --- |
| Laboratory test | Criteria for categorization as adverse events |
| Liver dysfunction  ・Aspartate aminotransferase (AST)  ・Alanine aminotransferase (ALT)  ・γ-Glutamyl transferase (γ-GT)  ・Alkaline phosphatase (ALP)  ・Lactate dehydrogenase (LDH) | 1.5-fold of the upper limit of the institutional standard levels |
| Kidney dysfunction  ・Serum creatinine  ・Blood urea nitrogen (BUN) | Above 1.5-fold of the upper limit of the institutional standard levels |
| Leukopenia  ・White blood cell count (WBC) | <3000 cells/mm3 |
| Drug-related encephalopathy | Mild symptoms |

Table S5. Evaluation of adverse events in cases of carbapenem antibiotic overdose before and after the introduction of the collaborative system

|  |  |  |  |
| --- | --- | --- | --- |
|  | Pre-Introduction (n=82) | Post-Introduction  (n=129) | *P*-value |
| Liver dysfunction | 14 (17.1%) | 22 (17.1%) | 1.000 |
| Kidney dysfunction | 0 (0%) | 1 (0.8%) | 1.000 |
| Leukopenia | 5 (6.1%) | 3 (2.3%) | 0.266 |
| Drug-related encephalopathy | 0 (0%) | 0 (0%) | 1.000 |
| Cases exhibiting any adverse eventa | 17 (20.7%) | 25 (19.4%) | 0.860 |
| Cases not exhibiting any adverse event | 65 (79.3%) | 104 (80.6%) | 0.860 |

a Some patients experienced more than one adverse event