

**Supplementary Table 1. Causative drugs of the drug hypersensitivity reactions in this study**

Causative drugs	Total (n = 668)	Immediate (n = 427)	Anaphylaxis (n = 143)	Delayed (n = 241)	p value
Single drug-induced	331 (49.6)	235 (55.0)	46 (32.2)	95 (39.4)	< 0.001
Radiocontrast media	126 (18.9)	96 (22.5)	4 (2.8)	30 (12.4)	< 0.001
Iopamidol	54 (42.9)	48 (50.0)	2 (50.0)	6 (20.0)	
Iohexol	32 (25.4)	23 (24.0)	2 (50.0)	9 (30.0)	
Iomeprol	15 (11.9)	12 (12.5)	0 (0.0)	3 (10.0)	
Iobitridol	12 (9.5)	11 (11.5)	0 (0.0)	1 (3.3)	
Ioversol	7 (5.6)	2 (2.1)	0 (0.0)	5 (16.7)	
Iodixanol	5 (4.0)	0 (0.0)	0 (0.0)	5 (16.7)	
Gadobutrol	1 (0.8)	0 (0.0)	0 (0.0)	1 (3.3)	
NSAIDs	96 (14.4)	72 (16.9)	21 (14.7)	24 (10.0)	0.114
Ketorolac	16 (16.7)	15 (20.8)	4 (19.0)	1 (4.2)	
Dexibuprofen	13 (13.5)	10 (13.9)	3 (14.3)	3 (12.5)	
Acetaminophen	11 (11.5)	7 (9.7)	3 (14.3)	4 (16.7)	
Propacetamol	10 (10.4)	10 (13.9)	3 (14.3)	0 (0.0)	
Naproxen	10 (10.4)	6 (8.3)	2 (9.5)	4 (16.7)	
Loxoprofen	8 (8.3)	6 (8.3)	2 (9.5)	2 (8.3)	
Ibuprofen	8 (8.3)	5 (6.9)	0 (0.0)	3 (12.5)	
Celecoxib	6 (6.2)	3 (4.2)	0 (0.0)	3 (12.5)	
Aceclofenac	3 (3.1)	3 (4.2)	2 (9.5)	0 (0.0)	
Aspirin	3 (3.1)	1 (1.4)	0 (0.0)	2 (8.3)	
Cloxinin	3 (3.1)	2 (2.8)	1 (4.8)	1 (4.2)	
Diclofenac	2 (2.1)	2 (2.8)	0 (0.0)	0 (0.0)	
Meloxicam	2 (2.1)	1 (1.4)	1 (4.8)	1 (4.2)	
Flubiprofen	1 (1.0)	1 (1.4)	0 (0.0)	0 (0.0)	
Beta lactams	41 (6.1)	27 (6.3)	8 (5.6)	14 (5.8)	0.004
Penicillin class					
Amoxicillin/clavulanate	7 (17.1)	2 (7.4)	1 (12.5)	5 (35.7)	
Amoxicillin	3 (7.3)	1 (3.7)	0 (0.0)	2 (14.3)	
Piperacillin/tazobactam	1 (2.4)	1 (3.7)	0 (0.0)	0 (0.0)	
Penicillin	1 (2.4)	1 (3.7)	1 (12.5)	0 (0.0)	
Cephalosporin class					
1st generation					
Cefalexin	1 (2.4)	0 (0.0)	0 (0.0)	1 (7.1)	
Cephadrine	1 (2.4)	0 (0.0)	0 (0.0)	1 (7.1)	
2nd generation					
Cefaclor	16 (39.0)	14 (51.9)	6 (75.0)	2 (14.3)	
3rd generation					
Ceftriaxone	8 (19.5)	7 (25.9)	0 (0.0)	1 (7.1)	
Cefpodoxime	1 (2.4)	1 (3.7)	0 (0.0)	0 (0.0)	
Ceftamet	1 (2.4)	0 (0.0)	0 (0.0)	1 (7.1)	
Cefixime	1 (2.4)	0 (0.0)	0 (0.0)	1 (7.1)	
Other antibiotics	25 (3.7)	14 (3.3)	3 (2.1)	11 (4.6)	0.096
Fluoroquinolone					
Ciprofloxacin	10 (40.0)	9 (64.3)	1 (33.3)	1 (9.1)	
Ciprofloxacin	6 (24.0)	5 (35.7)	0 (0.0)	1 (9.1)	
Levofloxacin	3 (12.0)	3 (21.4)	0 (0.0)	0 (0.0)	
Ofloxacin	1 (4.0)	1 (7.1)	1 (33.3)	0 (0.0)	

Supplementary Table 1. Continued

Causative drugs	Total (n = 668)	Immediate (n = 427)	Anaphylaxis (n = 143)	Delayed (n = 241)	p value
Antituberculosis drugs	3 (12.0)	2 (14.2)	0 (0.0)	1 (9.1)	
Rifampin	2 (8.0)	1 (7.1)	0 (0.0)	1 (9.1)	
Ethambutol	1 (4.0)	1 (7.1)	0 (0.0)	0 (0.0)	
Tetracycline	3 (12.0)	0 (0.0)	0 (0.0)	3 (27.3)	
Itraconazole	2 (8.0)	1 (7.1)	1 (33.3)	1 (9.1)	
Minocycline	2 (8.0)	1 (7.1)	1 (33.3)	1 (9.1)	
Lincosamide	1 (4.0)	0 (0.0)	0 (0.0)	1 (9.1)	
Macrolide	1 (4.0)	0 (0.0)	0 (0.0)	1 (9.1)	
Metronidazole	1 (4.0)	0 (0.0)	0 (0.0)	1 (9.1)	
Clindamycin	1 (4.0)	1 (7.1)	0 (0.0)	0 (0.0)	
Oseltamivir	1 (4.0)	0 (0.0)	0 (0.0)	1 (9.1)	
Gastrointestinal drugs	16 (2.4)	15 (3.5)	8 (5.6)	1 (0.4)	0.187
Cimetropium bromide	10 (62.5)	10 (66.7)	7 (87.5)	0 (0.0)	
Metoclopramide	3 (18.8)	3 (20.0)	1 (12.5)	0 (0.0)	
Buscopan	1 (6.2)	1 (6.7)	0 (0.0)	0 (0.0)	
Famotidine	1 (6.2)	1 (6.7)	0 (0.0)	0 (0.0)	
Tegoprazan	1 (6.2)	0 (0.0)	0 (0.0)	1 (100.0)	
Other analgesics	3 (0.4)	2 (0.5)	0 (0.0)	1 (0.4)	> 0.999
Nefopam	1 (33.3)	1 (50.0)	0 (0.0)	0 (0.0)	
Tramadol	1 (33.3)	1 (50.0)	0 (0.0)	0 (0.0)	
Acetaminophen/chlorzoxazone	1 (33.3)	0 (0.0)	0 (0.0)	1 (100.0)	
Anesthetics	2 (0.3)	1 (0.2)	0 (0.0)	1 (0.4)	> 0.999
Ketamine	1 (50.0)	1 (100.0)	0 (0.0)	0 (0.0)	
Lidocaine	1 (50.0)	0 (0.0)	0 (0.0)	1 (100.0)	
Antiepileptic drugs	1 (0.1)	0 (0.0)	0 (0.0)	1 (0.4)	NA
Lamotrigine	1 (100.0)	0 (0.0)	0 (0.0)	1 (100.0)	
Miscellaneous	21 (3.1)	8 (1.9)	2 (1.4)	13 (5.4)	0.447
Hormonal agent	6 (28.7)	1 (12.5)	0 (0.0)	5 (38.5)	
Drospirenone/estradiol	3 (14.3)	0 (0.0)	0 (0.0)	3 (23.1)	
Ganirelix	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
hCG	1 (4.8)	1 (12.5)	0 (0.0)	0 (0.0)	
Progesterone	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Vaccine	4 (19.1)	1 (12.5)	0 (0.0)	3 (23.1)	
Influenza vaccine	2 (9.5)	1 (12.5)	0 (0.0)	1 (7.7)	
Covid-19 vaccine	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Pneumococcal conjugate vaccine	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Antihistamine	2 (9.6)	2 (25.0)	0 (0.0)	0 (0.0)	
Cetirizine	1 (4.8)	1 (12.5)	0 (0.0)	0 (0.0)	
Olopatadine	1 (4.8)	1 (12.5)	0 (0.0)	0 (0.0)	
Anticancer drug	2 (9.6)	0 (0.0)	0 (0.0)	2 (15.4)	
Docetaxel	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	

**Supplementary Table 1. Continued**

Causative drugs	Total (n = 668)	Immediate (n = 427)	Anaphylaxis (n = 143)	Delayed (n = 241)	<i>p</i> value
Pembrolizumab	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Dexamethasone	2 (9.5)	1 (12.5)	1 (50.0)	1 (7.7)	
Amiodarone	1 (4.8)	1 (12.5)	0 (0.0)	0 (0.0)	
Botulinum toxin type A	1 (4.8)	1 (12.5)	1 (50.0)	0 (0.0)	
Erdosteine	1 (4.8)	1 (12.5)	0 (0.0)	0 (0.0)	
Levocloperastine	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Liraglutide	1 (4.8)	0 (0.0)	0 (0.0)	1 (7.7)	
Multiple suspected drug reactions	337 (50.5)	192 (45.0)	97 (67.8)	145 (60.2)	NA
NSAIDs + $\beta$ -lactams	119 (35.3)	82 (42.7)	51 (52.6)	37 (25.5)	
NSAIDs + Muscle relaxants	45 (13.4)	28 (14.6)	13 (13.4)	17 (11.7)	
NSAIDs + Gastrointestinal drugs	33 (9.8)	18 (9.4)	6 (6.2)	15 (10.3)	
Gastrointestinal drugs combination	9 (2.7)	6 (3.1)	0 (0.0)	3 (2.1)	
Gastrointestinal drugs + Muscle relaxants	4 (1.2)	1 (0.5)	0 (0.0)	3 (2.1)	
Other combination	127 (37.7)	57 (29.7)	27 (27.8)	69 (47.6)	

Values are presented as number (%). Percentages in parentheses for each major drug category (e.g., NSAIDs, beta lactams) indicate the proportion among all 668 single or multiple drug-induced cases. Percentages in parentheses within each drug class indicate the proportion of each specific drug among cases in that class.

NSAIDs, nonsteroidal anti-inflammatory drugs; hCG, human chorionic gonadotropin; NA, not applicable.

*p* values indicate comparisons between immediate and delayed reactions.