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Pharmacotherapy Handbook, 11e >

## Appendix 5: Drug-Induced Hematologic Disorders

### INTRODUCTION

TABLE A5-1

**Drugs Associated with Aplastic Anemia**

**Observational study evidence**

- Carbamazepine
- Furosemide
- Gold salts
- Mebendazole
- Methimazole
- Nonsteroidal anti-inflammatory drugs
- Oxyphenbutazone
- Penicillamine
- Phenobarbital
- Phenothiazines
- Phenytoin
- Propylthiouracil
- Sulfonamides
- Thiazides

**Case report evidence (*probable or definite causality rating*)**

- Acetazolamide
- Aspirin
- Captopril
- Chloramphenicol
- Chloroquine
- Chlorothiazide
- Chlorpromazine
- Dapsone
- Felbamate
- Interferon alfa
- Lisinopril
- Lithium
- Nizatidine
- Pentoxifylline
- Quinidine
- Sulindac
- Ticlopidine

**MedWatch postmarketing reports 2009–2017**

- Adalimumab
- Aliskiren
- Amlodipine
- Carvedilol
- Dantrolene
- Etanercept
- Oxcarbazepine
- Valsartan

TABLE A5-2

**Drugs Associated with Agranulocytosis**

Observational Study Evidence	Case Report Evidence ( <i>Probable or Definite Causality Rating</i> )		MedWatch Postmarketing Reports 2009–2017
β-Lactam antibiotics	Acetaminophen	Levodopa	Amlodipine
Carbamazepine	Acetazolamide	Meprobamate	Aripiprazole
Carbimazole	Ampicillin	Methazolamide	Benazapril
Clomipramine	Captopril	Methyldopa	Boceprevir
Digoxin	Carbenicillin	Metronidazole	Clozapine
Dipyridamole	Cefotaxime	Nafcillin	Defarasirox
Ganciclovir	Cefuroxime	NSAIDs	Fluoxetine
Glyburide	Chloramphenicol	Olanzapine	Haloperidol
Gold salts	Chlorpromazine	Oxacillin	Hydrochlorothiazide
Imipenem–cilastatin	Chlorpropamide	Penicillamine	Iacosamide
Indomethacin	Chlorpheniramine	Penicillin G	Leflunomide
Macrolide antibiotics	Clindamycin	Pentazocine	Levitiracetam
Methimazole	Clozapine	Phenytoin	Memantine
Mirtazapine	Colchicine	Primidone	Molindone
Phenobarbital	Doxepin	Procainamide	Olanzapine
Phenothiazines	Dapsone	Propylthiouracil	Oxcarbazepine
Prednisone	Desipramine	Pyrimethamine	Paliperidone
Propranolol	Ethacrynic acid	Quinidine	Pantoprazole
Spironolactone	Ethosuximide	Quinine	Pimozide
Sulfonamides	Flucytosine	Rifampin	Propafenone
Sulfonylureas	Gentamicin	Streptomycin	Quetiapine
Ticlopidine	Griseofulvin	Terbinafine	Rifabutin
Valproic acid	Hydralazine	Ticarcillin	Risperidone

Zidovudine	Hydroxychloroquine	Tolbutamide	Sulfasalazine
	Imipenem-cilastatin	Vancomycin	Thiothixene
	Imipramine		Trandolapril
	Lamotrigine		Ziprasidone

NSAID, nonsteroidal anti-inflammatory drug.

TABLE A5-3

**Drugs Associated with Hemolytic Anemia**

**Observational study evidence**

- Phenobarbital
- Phenytoin
- Ribavirin

**Case report evidence (*probable or definite* causality rating)**

- Acetaminophen
- Angiotensin-converting enzyme inhibitors
- β-Lactam antibiotics
- Cephalosporins
- Ciprofloxacin
- Clavulanate
- Erythromycin
- Hydrochlorothiazide
- Indinavir
- Interferon alfa
- Ketoconazole
- Lansoprazole
- Levodopa
- Levofloxacin
- Methyldopa
- Minocycline
- NSAIDs
- Omeprazole
- p-Aminosalicylic acid
- Phenazopyridine
- Probenecid
- Procainamide
- Quinidine
- Rifabutin
- Rifampin
- Streptomycin
- Sulbactam
- Sulfonamides
- Sulfonylureas

Tacrolimus  
Tazobactam  
Teicoplanin  
Tolbutamide  
Tolmetin  
Triamterene

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Amlodipine  
Bevacizumab  
Chlorpropamide  
Pegademase  
Pioglitazone  
Rosiglitazone

NSAID, nonsteroidal anti-inflammatory drug.

TABLE A5-4

**Drugs Associated with Metabolic Hemolytic Anemia**

**Observational study evidence**

Dapsone  
Rasburicase

**Case report evidence (*probable or definite causality rating*)**

Ascorbic acid  
Metformin  
Methylene blue  
Nalidixic acid  
Nitrofurantoin  
Phenazopyridine  
Primaquine  
Sulfacetamide  
Sulfamethoxazole  
Sulfanilamide

TABLE A5-5

**Drugs Associated with Megaloblastic Anemia**

**Case report evidence (*probable* or *definite* causality rating)**

- Azathioprine
- Chloramphenicol
- Colchicine
- Cotrimoxazole
- Cyclophosphamide
- Cytarabine
- 5-Fluorodeoxyuridine
- 5-Fluorouracil
- Hydroxyurea
- 6-Mercaptopurine
- Methotrexate
- Oral contraceptives
- p-Aminosalicylate
- Phenobarbital
- Phenytoin
- Primidone
- Pyrimethamine
- Sulfasalazine
- Tetracycline
- Vinblastine

TABLE A5-6

**Drugs Associated with Thrombocytopenia**

**Observational study evidence**

- Carbamazepine
- Oxaliplatin
- Phenobarbital
- Phenytoin
- Valproic acid

**Case report evidence (*probable* or *definite* causality rating)**

- Abciximab
- Acetaminophen
- Acyclovir
- Albendazole
- Aminoglutethimide
- Aminosalicylic acid
- Amiodarone
- Amphotericin B
- Ampicillin
- Aspirin
- Atorvastatin

Bevacizumab  
Bisoprolol  
Capecitabine  
Captopril  
Chlorothiazide  
Chlorpromazine  
Chlorpropamide  
Cimetidine  
Ciprofloxacin  
Clarithromycin  
Clopidogrel  
Dabigatran  
Danazol  
Deferoxamine  
Diazepam  
Diazoxide  
Diclofenac  
Diethylstilbestrol  
Digoxin  
Ethambutol  
Enzalutamide  
Felbamate  
Fenofibrate  
Fluconazole  
Gabapentin  
Gold salts  
Haloperidol  
Heparin  
Hydrochlorothiazide  
Ibuprofen  
Inamrinone  
Indinavir  
Indomethacin  
Interferon alfa-2b  
Isoniazid  
Isotretinoin  
Itraconazole  
Levamisole  
Levofloxacin  
Linezolid  
Lithium  
Low-molecular-weight heparins  
Lurasidone  
Measles, mumps, and rubella vaccine  
Meclufenamate  
Mesalamine  
Methyldopa  
Minoxidil  
Morphine

[Moxifloxacin](#)  
[Nalidixic acid](#)  
[Naphazoline](#)  
[Naproxen](#)  
[Nitroglycerin](#)  
[Octreotide](#)  
[Olmesartan](#)  
[Oseltamivir](#)  
[Oxacillin](#)  
[p-Aminosalicylic acid](#)  
[Pantoprazole](#)  
[Penicillamine](#)  
[Pentamidine](#)  
[Pentoxifylline](#)  
[Piperacillin](#)  
[Primidone](#)  
[Procainamide](#)  
[Pyrazinamide](#)  
[Quinidine](#)  
[Quinine](#)  
[Ranitidine](#)  
[Recombinant hepatitis B vaccine](#)  
[Red Bush Tea \(Rooibos\)](#)  
[Rifampin](#)  
[Rivaroxaban](#)  
[Simvastatin](#)  
[Sirolimus](#)  
[Sulfasalazine](#)  
[Sulfonamides](#)  
[Sulindac](#)  
[Tacrolimus](#)  
[Tamoxifen](#)  
[Tolmetin](#)  
[Trastuzumab](#)  
[Trimethoprim](#)  
[Vancomycin](#)

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[Acarbose](#)  
[Adalimumab](#)  
[Ado-trastuzumab](#)  
[Alfuzosin](#)  
[Aliskirin](#)  
[Amlodipine](#)  
[Benazapril](#)  
[Bocepravir](#)  
[Bortezomib](#)  
[Chlorambucil](#)  
[Cladribine](#)

Cotrimoxazole  
Dalteparin  
Dantrolene  
Deferasirox  
Didanosine  
Drotecogin alfa  
Efalizumab  
Eltrombopag  
Enoxaparin  
Epirubicin  
Epoprostenol  
Eptifibatide  
Ethionamid  
Filgrastim  
Fondaparinux  
Glimepiride  
Heparin  
Hydrochlorothiazide  
Indomethacin  
Iloprost  
Interferon beta 1a  
Leflunomide  
Losartan  
Montelukast  
Obinutuzumab  
Octreotide  
Oxcarbazepine  
Palivizumab  
Pamidronate  
Pemetrexed  
Pioglitazone  
Pomalidomide  
Propylthiouracil  
Quinine  
Raltegravir  
Rosiglitazone  
Rosuvastatin  
Spironolactone  
Sunitinib  
Telmisartan  
Toremide  
Trepstinil  
Ursodiol

(See e/Chapter 121, *Drug-Induced Hematologic Disorders*, authored by Elisa M. Greene and Tracy M. Hagemann, for a more detailed discussion of this topic.)