

High Alert Medications

Jabatan Farmasi
Hospital Tengku Ampuan Afzan

Adrenergic Agonists, IV

- Adrenaline, Dexmedetomidine, Dobutamine, Ephedrine, Isoprenaline, Noradrenaline, Phenylephrine, Salbutamol, Terbutaline

Adrenergic Antagonists, IV

- Esmolol, Labetolol, Metoprolol

Anaesthetic Agents, General, Inhaled, and IV

- Bupivacaine, Desflurane, Dexmedetomidine (Precedex), Etomidate, Fentanyl, Ketamine, Lignocaine (lidocaine), Mepivacaine, Propofol, Remifentanyl, Ropivacaine, Sevoflurane

Antiarrhythmics, IV

- Adenosine, Amiodarone, Digoxin, Lignocaine (lidocaine), Metoprolol, Verapamil

Antithrombotic Agents

- Alteplase, Apixaban, Aspirin, Clopidogrel, Dabigatran, Edoxaban, Enoxaparin, Fondaparinux, Heparin, Rivaroxaban, Streptokinase, Tirofiban, Tenecteplase, Urokinase, Warfarin

Antivenom

- Antivenene Cobra, Green Pit Viper Antivenom, Hematotoxic Polyvalent Snake Antivenom, King Cobra Antivenom, Neurotoxic Polyvalent Snake Antivenom, Antivenene Pit Viper, Antivenene Serum Sea Snake

Coagulation Factor, IV

- Factor IX (ALPHANINE), Factor VIIa (Recombinant) eptacog alfa (activated) (NOVOSEVEN), Factor IX, Factor II, Factor VII and Factor X In Combination (OCTAPLEX), Factor VIII (Human blood coagulation factor) & Von Willebrand factor (ALPHANATE), Recombinant Factor IX (rFIX)

Concentrated Electrolytes, IV

- Calcium Chloride, Calcium Gluconate 10%, Magnesium Sulphate 50%, Potassium Chloride, Potassium Dihydrogen Phosphate Injection, Potassium Acetate, Sodium Bicarbonate 8.4%, Sodium Chloride 3%, Sodium Chloride 20%, Sodium Glycerophosphate

Dextrose, Hypertonic, 20% or greater

- Dextrose 20%, Dextrose 50%

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Chemotherapeutic Agents, Parenteral and Oral

- ORAL: Afatinib Dimaleate, Alectinib, All-Trans Retinoic Acid (ATRA), Anastrozole, Azathioprine, Bicalutamide, Busulphan, Capecitabine, Chlorambucil, Cyclophosphamide, Dacomitinib Monohydrate, Etoposide, Everolimus, Gefitinib, Hydroxyurea, Imatinib, Leflunomide, Lenalidomide, Letrozole, Lorlatinib, Melphalan, Mercaptopurine, Methotrexate, Nilotinib, Nintedanib, Osimertinib, Palbociclib, Pazopanib Hydrochloride, Ponatinib, Procarbazine, Ribociclib, Ruxolitinib, Sunitinib Malate, Tamoxifen, Thalidomide, Thioguanine, Venetoclax
- PARENTERAL: Actinomycin D (Dactinomycin), Antilymphocyte/Antithymocyte Immunoglobulin (from Horse), Arsenic Trioxide, Azacitidine, Bendamustine, Bleomycin, Bortezomib, Carboplatin, Cisplatin, Cladribine, Cyclophosphamide, Cytarabine, Dacarbazine, Daunorubicin, Decitabine, Docetaxel, Doxorubicin, Epirubicin, Etoposide, Filgrastim, Fludarabine, Fluorouracil, Gemcitabine, Idarubicin, Ifosfamide, Irinotecan, L-Asparaginase, Melphalan, Methotrexate, Mitomycin-C, Mitoxantrone, Oxaliplatin, Paclitaxel, Pegylated L-Asparaginase, Pembrolizumab, Pemetrexed Disodium, Rituximab, Trastuzumab, Vinblastine, Vincristine, Vindesine, Vinorelbine
- All Chemotherapeutic preparations

Dialysis Solutions, Peritoneal and Hemodialysis

- Haemodialysis Concentrate Acidic Component (Renacid K5), Haemodialysis Concentrate Bicarbonate Component B (Renacarb K2), Haemodialysis Concentrate Acidic Component (Renacid K2S), Haemodialysis Concentrate Acidic Component (Renacid K3), Haemodialysis Concentrate Acidic Component (Renacid K4)
- Peritoneal Dialysis Solution (1.5% Dextrose), Peritoneal Dialysis Solution (4.25% Glucose), Peritoneal Dialysis with 7.5% Icodextrin Solution
- Continuous Ambulatory Peritoneal Dialysis Solution containing 1.5% Dextrose, Continuous Ambulatory Peritoneal Dialysis Solution containing 2.5% Dextrose, Continuous Ambulatory Peritoneal Dialysis Solution containing 4.25% Dextrose, Continuous Ambulatory Peritoneal Dialysis (CAPD) Solution containing 2.3% glucose Calcium 1.75mmol/L & Calcium 1.25mmol/L

Epidural and Intrathecal Medications

- Bupivacaine, Fentanyl, Levobupivacaine, Mepivacaine, Morphine, Ropivacaine

Inotropic Medications, IV

- Adrenaline, Digoxin, Dobutamine, Dopamine, Esmolol, Isoprenaline, Levosimendan, Metoprolol, Milrinone, Noradrenaline, Phenylephrine, Verapamil

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Immunosuppressant Agents

- Antithymocyte Immunoglobulin (from rabbit) Injection, Azathioprine, Baricitinib, Ciclosporin, Etanercept, Everolimus, Hydroxychloroquine, Sirolimus, Tacrolimus, Methotrexate, Mycophenolate Mofetil, Mycophenolate Sodium, Adalimumab, Belimumab, Denosumab, Golimumab, Infliximab, Secukinumab, Tocilizumab, Vedolizumab, Etanercept, Fingolimod, Leflunomide, Lenalidomide, Thalidomide, Tofacitinib Citrate, Upadacitinib, Ustekinumab

Insulin, Subcutaneous and IV

- Insulin aspart 30%/aspart protamine 70% (NovoMix-30), Insulin aspart (Novorapid), Insulin Degludec/Aspart (Ryzodeg), Insulin detemir (Levemir), Insulin glargine (Basalog One), Insulin glargine (Lantus), Insulin Glargine + Lixisenatide (Soliqua), Insulin glargine (Toujeo), Insulin Glulisine, Insulin isophane (Insugen-N @ Insulatard), Insulin lispro 50%/lispro protamin 50% (Humalog Mix-50), Insulin regular (Insugen-R @ Actrapid), Insulin regular/isophane (Insugen-30/70 @ Mixtard-30)

Moderate Sedation Agents, IV

- Dexmedetomidine, Diazepam, Etomidate, Fentanyl, Ketamine, Midazolam, Morphine, Phenobarbitone, Propofol

Moderate and Minimal Sedation Agents, oral, for children

- Chloral Hydrate

Neuromuscular Blocking Agents

- Atracurium Besylate, Cisatracurium, Rocuronium, Suxamethonium

Opioids, including:

- ORAL (including liquid concentrates, immediate – and sustained- release formulation): Dihydrocodeine, Methadone, Oxycodone / Naloxone, Oxycodone, Tramadol
- IV: Tramadol, Fentanyl, Morphine, Oxycodone, Pethidine, Remifentanyl
- TRANSDERMAL: Fentanyl Patch

Others

- Inj Glyceryl Trinitrate, Inj Oxytocin, Inj Vasopressin

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Parenteral Nutrition Preparations

- Amino acid 10% (Aminoven & Aminoven Infant), Amino acid 6.53% (Vaminolact), Amino Acid 6.5% with Taurine, Fat emulsion, SMOFlipid 20%, N(2)-L-alanyl-L-glutamine 20% (Dipeptivan), Nutriflex Lipid Peri, Nutriflex Lipid Plus, Nutrilflex Omega Plus, Nutriflex Omega Special, Smof Kabiven Central, Smof Kabiven Electrolyte-free, Smof Kabiven Peripheral
- Sodium Glycerophosphate, Trace Element-Adult (Addaven), Trace Element - Paediatric (Peditrace), Vitamin A, B, C, D, E (Cernevite), Vitamin A, D, E, K (Vitalipid N Infant), Vitamin B and C (P-Trovite), Vitamin B and C (Soluvit N) in WFI
- All Total Parenteral Nutrition (TPN) Compounding

Potassium Salt Injections

- Magnesium Cl 16mmol, Potassium Acetate, Potassium Chloride, Potassium Dihydrogen Phosphate

Sodium Chloride Solution (>0.9%)

- Sodium Chloride 3%, Sodium Chloride 20%

References:

1. Guideline on Safe Use of High Alert Medications, 2nd Edition, Pharmaceutical Services Division Ministry of Health Malaysia
2. High-Alert Medications in Acute Care Settings, Institute for Safe Medication Practices, August 23, 2018