Massage Therapy & Medications Part II

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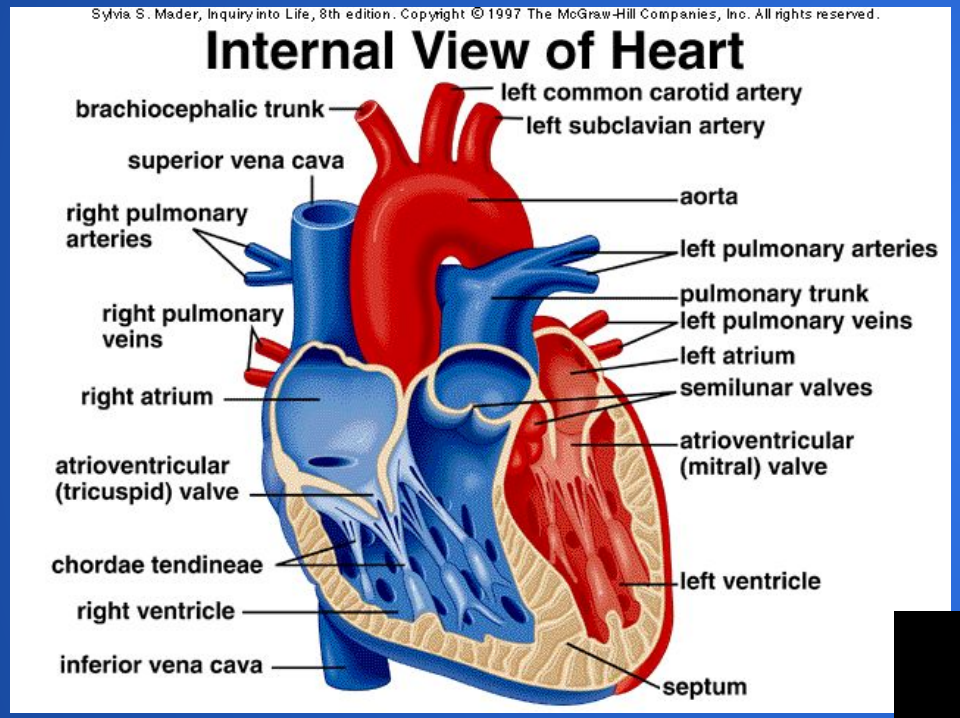
Chapter 7: Drugs for Managing Cardiovascular Disease



Drugs for Managing Cardiovascular Disease – Introduction

Cardiovascular diseases are defined as diseases and injuries of the cardiovascular system: the heart, the blood vessels of the heart and the system of blood vessels (veins and arteries) throughout the body and within the brain. Stroke is the result of a blood flow problem in the brain. It is considered a form of cardiovascular disease.

Since 1952, the cardiovascular death rate in Canada has declined by more than 75 per cent – and nearly 40 per cent in the last decade – largely due to research advances in surgical procedures, drug therapies and prevention efforts (Statistics Canada, 2011c).

Cardiovascular disease deaths

Every 7 minutes in Canada, someone dies from heart disease or stroke (Statistics Canada, 2011c).

Heart disease and stroke are two of the three leading causes of death in Canada. These statistics are based on 2008 data (the latest year available from Statistics Canada).

In 2008 cardiovascular disease accounted for (Statistics Canada, 2011c):

- 29% of all deaths in Canada (69,703 deaths – or more than 69,500)
- 28% of all male deaths
- 29.7% of all female deaths

HEART & STROKE™ FOUNDATION

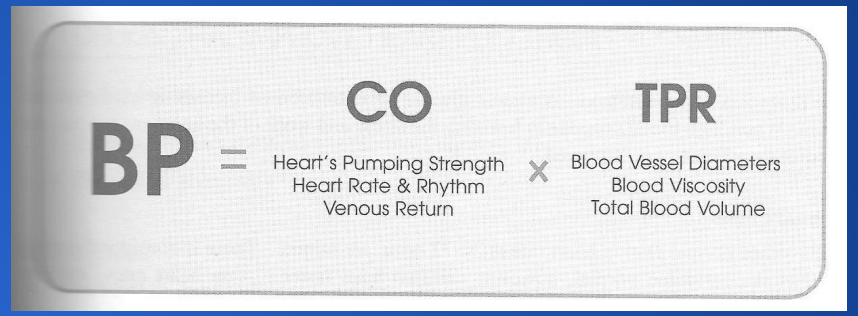
Drugs for Managing Cardiovascular Disease – Introduction

- Major risk factors for cardiovascular disease (CVD) include:
  - Hypertension, dyslipidemia, diabetes mellitus, current cigarette smoking, obesity, sedentary lifestyle
  - Age, male gender, family history of CVD
- General treatment for cardiovascular disease includes the following:
  - Diet and exercise
  - Stress reduction and weight loss
  - Medications
  - Surgery
- You will see clients with cardiovascular disease!

Drugs for Managing Cardiovascular Disease – Common Cardiovascular Conditions

- Atherosclerosis (cholesterol buildup in artery walls occluding blood flow)
- Angina (typically secondary to atherosclerosis – intermittent chest pain produced by the lack of oxygen to the heart tissue due to restriction in blood supply, specifically, though the coronary arteries)
- Myocardial infarction (Also known as a heart attack; acute myocardial ischemia resulting in cardiac tissue death)
- Hypertension, arrhythmias
- Transient ischemic attack (similar to angina, but occurs in the brain)
- Congestive heart failure (the heart is unable to efficiently pump blood to meet the body's metabolic demands – generally secondary to MI)

Drugs for Managing Cardiovascular Disease HR and CVD



- The cardiovascular system is responsible for the transport of nutrients to the cells as well as the removal of wastes from the cells via the bloodstream
  - Supply and demand! When the body's demands are greater due to a stressor like exercise, the cardiovascular system enhances the blood supply by increasing BP/HR and re-directing blood flow to higher priority tissues/organs
- Blood pressure:
  - Measured in mmHG; systolic blood pressure over diastolic blood pressure
  - Normal blood pressure is <120/80 mmHg
  - Chronic hypertension (≥140/90 mmHg) places unnecessary stress on the body, increasing the risk for heart attack, stroke, kidney disease and death!
    - Primary/idiopathic HTN (most common)
    - Secondary HTN and white coat HTN

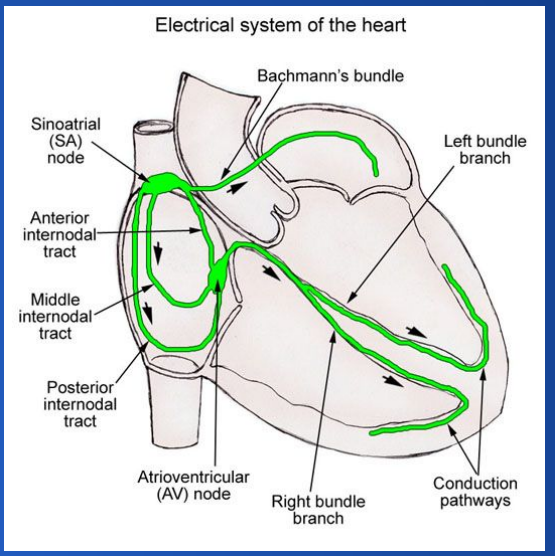
Drugs for Managing Cardiovascular Disease – BP, HR and CVD

- Heart rate:
  - Measured in beats per minute (bpm)
  - Normal resting heart rate ranges between **60-100 bpm** depending on age, fitness, emotions and medications (Mayo Clinic)
  - Heart rate is increased in times of stress (recall supply and demand), but chronic heart rate elevation has negative effects on heart health
- Medications routinely indicated in the treatment of cardiovascular disease produce the following effects:
  - Improvement of heart function
  - Vasodilation, reduction in blood volume
  - Affect coagulation, decrease cholesterol

Drugs for Managing Cardiovascular Disease – Medications that Improve Heart Function

- Beta-blockers
  - These drugs bind to and inhibit beta-adrenergic receptors and reduces the work of the heart through decreased heart rate and force of contraction
  - Indicated for the treatment of hypertension, arrhythmia, angina, migraines (prevention) and tremors
    - Includes metoprolol, propranolol, nadolol, carvedilol, etc.
  - Mechanism of action
    - Beta-blockers inhibit the action of sympathetic neurotransmitters like epinephrine, which would normally result in increased BP/HR and force of contraction, simply by occupying the beta-adrenergic receptors
  - Common side effects include[2]:
    - Hypotension, bradycardia, dizziness, fatigue, nausea, diarrhea

Drugs for Managing Cardiovascular Disease – Medications that Improve Heart Function



- Cardiac glycosides
  - Sometimes referred to as digitalis; found in foxglove
  - Indicated for the treatment of congestive heart failure and arrhythmias
    - Includes digoxin (Toloxin)
  - Mechanism of action[2]
    - Increases contractility of the heart by inhibiting the Na^+/K^+ pump, which increases intracellular sodium in myocardial cells and leads to calcium influx through the Na^+/Ca^{2+} pump (calcium is important heart muscle contraction)
    - Decreases heart rate by suppressing the atrioventricular node in the heart (responsible for impulse conduction)
  - Common side effects include[2]:
    - Nausea/vomiting, diarrhea, dizziness, headache, visual disturbances

Drugs for Managing Cardiovascular Disease – Medications that Cause Vasodilation

- Nitrates
  - Common group of vasodilator medications indicated for the treatment of angina and heart failure
    - Includes nitroglycerin (oral/sublingual tablets, sublingual spray, IV, patches), isosorbide dinitrate, etc.
  - Mechanism of action
    - Metabolized to nitric oxide, which causes smooth muscle relaxation in the blood vessels leading to vasodilation in the coronary arteries and peripheral arteries/veins
    - Decreased peripheral resistance, increased blood flow, decreased stress on the heart
  - Common side effects include[2]:
    - Dizziness, lightheadedness, headache, nausea, dry mouth, bradycardia, orthostatic hypotension, peripheral edema, tachycardia, syncope

Drugs for Managing Cardiovascular Disease – Medications that Cause Vasodilation

- Calcium channel blockers
  - Family of medications indicated for the treatment of angina, hypertension, migraine prevention
    - Includes nifedipine, amlodipine, diltiazem, verapamil, felodipine, etc.
  - Mechanism of action[2]
    - Prevents calcium from entering smooth muscle cells in blood vessels and the myocardium resulting in coronary/peripheral vasodilation, which reduces blood pressure
  - Common side effects include:
    - Dizziness, headache, nausea, flushing, fatigue, hypotension, peripheral edema

Drugs for Managing Cardiovascular Disease – Medications that Cause Vasodilation

- ACE inhibitors
  - The renin-angiotensin system, which plays an important role in the regulation of blood pressure, is affected by ACE inhibitors
  - ACE inhibitors are a common family of medications indicated in the treatment of hypertension and heart failure
    - Includes ramipril, fosinopril, lisinopril, enalapril, captopril
  - Mechanism of action
    - ACE inhibitors inhibit the angiotensin converting enzyme, which is responsible for converting angiotensin I to angiotensin II. Angiotensin II causes vasoconstriction and aldosterone secretion (salt and water retention) increased blood pressure
    - Blocking the production of angiotensin II reduces blood pressure
  - Common side effects include[2]
    - Dizziness, headache, fatigue, orthostatic hypotension, nausea, cough
- ARBs are similar to and are sometimes prescribed to replace ACE inhibitors!

Drugs for Managing Cardiovascular Disease – Medications that Cause Vasodilation

- Alpha-1 receptor blockers
  - Common group of drugs indicated in the treatment of hypertension and benign prostatic hyperplasia (more commonly prescribed for BPH)
    - Includes alfuzosin, doxazosin, prazosin
  - Mechanism of action[2]
    - To reduce blood pressure, these drugs cause vasodilation and decreased total peripheral resistance by inhibiting alpha-1 adrenergic receptors in blood vessels
  - Common side effects include[2]
    - Dizziness, fatigue, headache, orthostatic hypotension, flushing, nausea, dry mouth, sexual dysfunction
- Alpha-2 agonists, such as clonidine, stimulate alpha-2 receptors in the brain leading to decreased peripheral resistance and decreased blood pressure

Drugs for Managing Cardiovascular Disease – Medications Affecting Coagulation

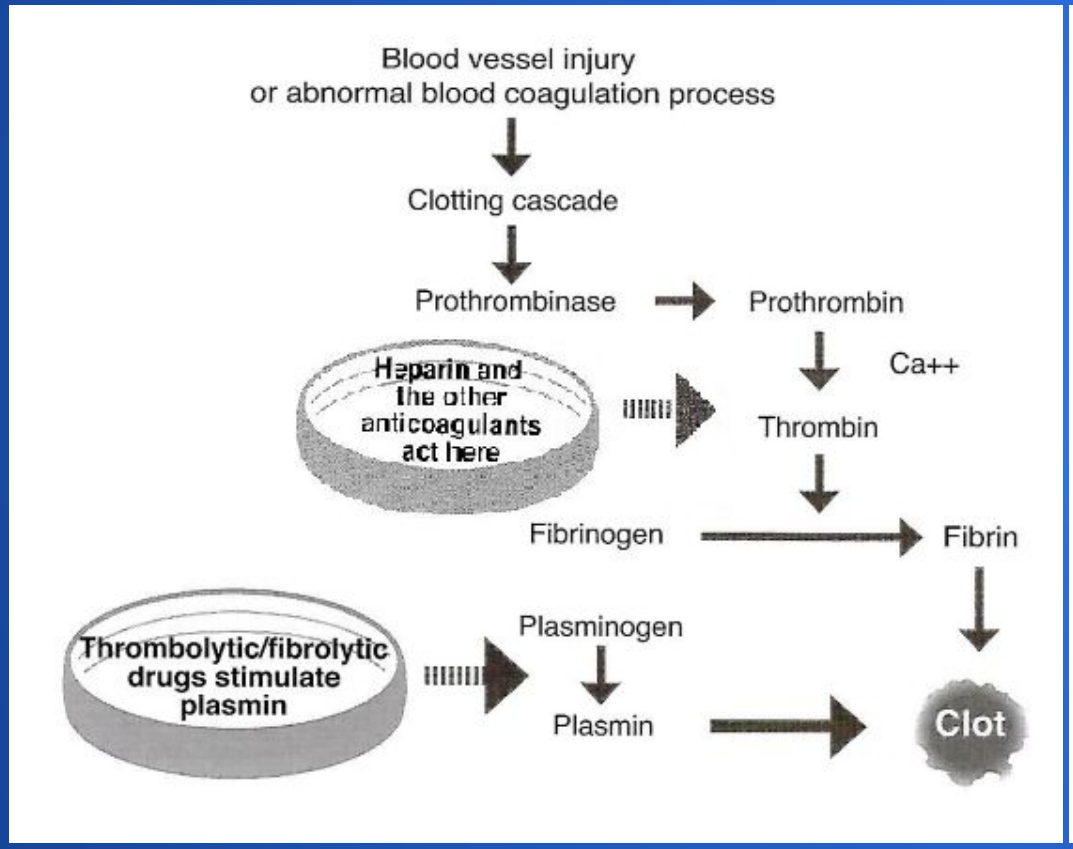
- Blood coagulation is imperative when bleeding occurs secondary to tissue injury. Medications affecting blood coagulation fall under three categories – anticoagulants, platelet inhibitors and thrombolytics
- Anticoagulants
  - Warfarin (Coumadin®)
    - Vitamin K antagonist – inhibits formation of certain clotting factors, slow onset
    - Popular oral anticoagulant indicated for the treatment of DVT and the prevention of thrombosis/embolism associated with heart attack and stroke
    - Side effects: risk of bleeding, headache, fatigue, nausea, diarrhea
  - Heparin
    - IV/SC injection indicated for the treatment of acute coronary syndrome as well as deep vein thrombosis and pulmonary embolism, fast onset
    - Enhances the activity of antithrombin III, which complexes with thrombin leading to the

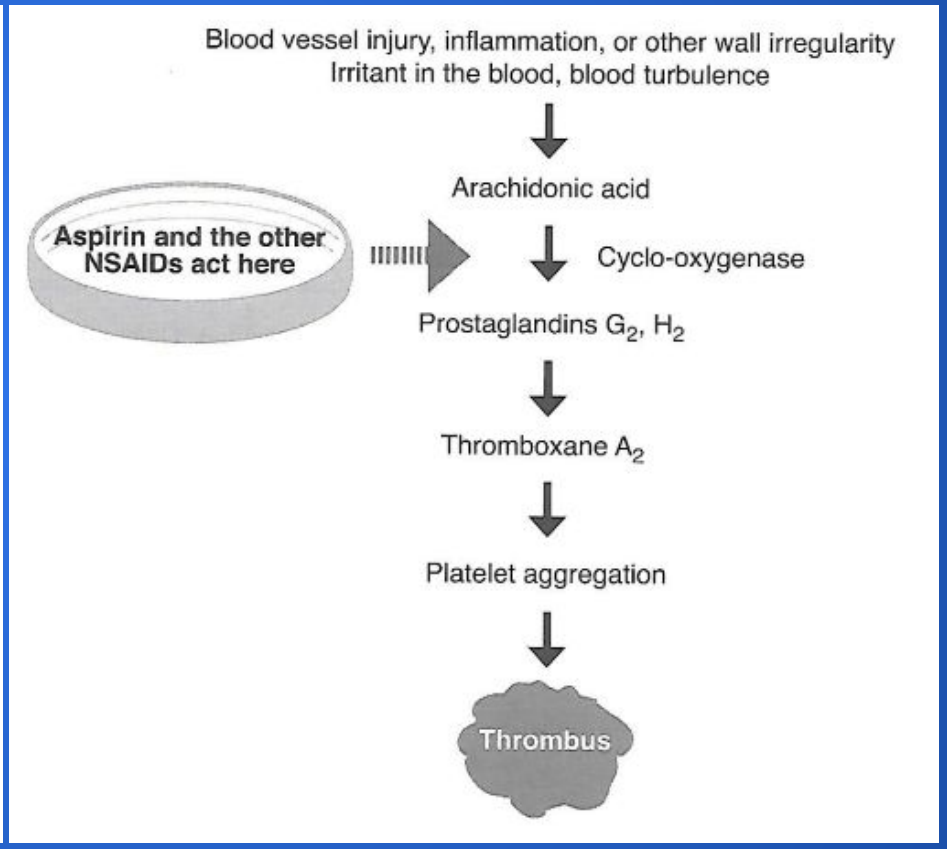
      inhibition of enzymes that are essential to the clotting process[1]
    - Side effects[2]: hemorrhagic shock, headache, fever, nausea, vomiting, bruising

Drugs for Managing Cardiovascular Disease – Medications Affecting Coagulation

- Platelet inhibitors
  - These medications that are responsible for platelet aggregation (clumping together) inhibition are indicated in the prevention of thrombosis/embolism associated with heart attack and stroke
    - Includes aspirin, clopidogrel, Aggrenox (dipyridamole and aspirin), ticagrelor
  - Side effects: increased risk of bleeding, nausea, fatigue, headache
- Thrombolytics
  - Medications that dissolve clots/thrombi formed in blood vessels by converting plasminogen to plasmin, which is essential to fibrinolysis
  - Indicated in the treatment of heart attack (reteplase, tenecteplase and alteplase), stroke (alteplase), pulmonary embolism (alteplase)
  - Side effects[2]: GI/GU BLEEDING, injection site bleeding

Drugs for Managing Cardiovascular Disease – Medications Affecting Coagulation (MOA)





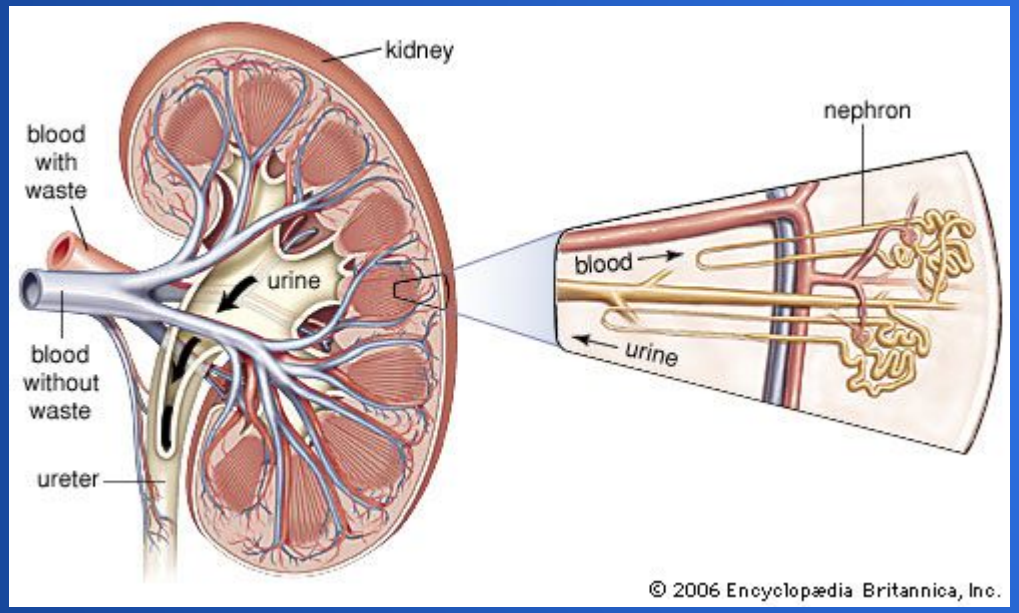
Drugs for Managing Cardiovascular Disease – Medications that Reduce Blood Volume

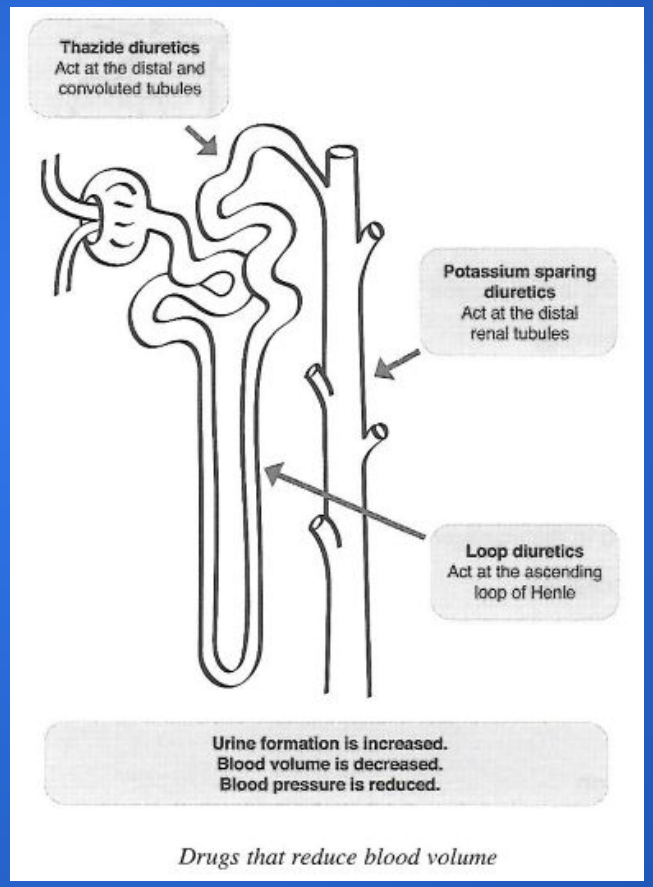
- Also known as "diuretics" or "water pills"
- Well tolerated group of medications that exert their effect on the kidneys, resulting in increased urine production
- Three pharmacologic categories:
  - Thiazide diuretics
  - Loop diuretics
  - Potassium sparing diuretics
- Diuretic medications are indicated in the treatment of high blood pressure, heart failure, cirrhosis (liver disease), pulmonary and other edema

Drugs for Managing Cardiovascular Disease – Medications that Reduce Blood Volume

- Thiazide diuretics
  - Includes hydrochlorothiazide, chlorthalidone
  - Mechanism: Thiazides work by inhibiting the reabsorption of sodium in the distal and convoluted tubules of the nephron leading to increased sodium and water excretion
  - Side effects[2]: dizziness, headache, orthostatic hypotension, nausea
- Loop diuretics
  - Includes furosemide (Lasix)
  - Mechanism[2]: Loop diuretics work by inhibiting the reabsorption of sodium and chloride in the ascending loop of Henle leading to increased sodium, chloride and water excretion
  - Side effects[2]: dizziness, headache, orthostatic hypotension, nausea
- Potassium sparing diuretics
  - Includes spironolactone, triamterene
  - Mechanism[2]: Works by increasing NaCl/water excretion and conserving potassium ions in the distal renal tubules
  - Side effects[2]: headache, drowsiness, nausea, diarrhea

Drugs for Managing Cardiovascular Disease – Medications that Reduce Blood Volume (MOA)





Drugs for Managing Cardiovascular Disease – Medications that Lower Blood Lipid Levels

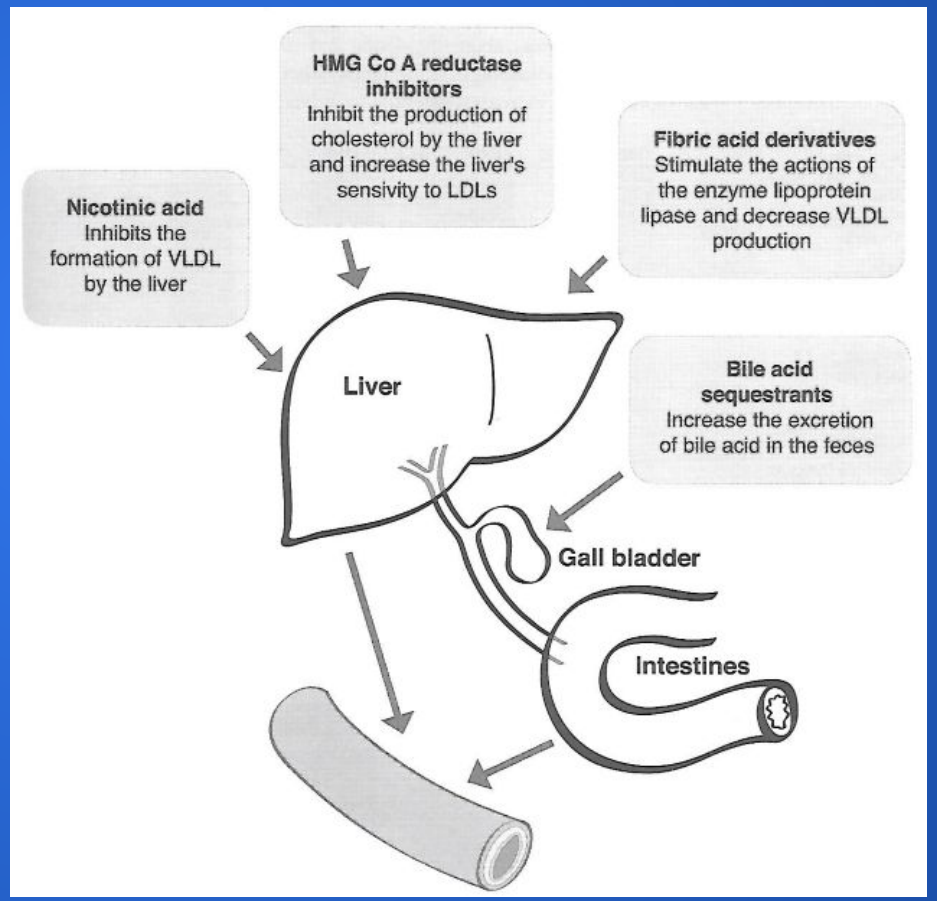
- Lipids are important in normal body functions! Triglycerides can provide energy for the body while cholesterol is necessary for hormone production and is a component of cell membranes!
- Lipid-lowering medications are used to treat **dyslipidemia**, which can be defined high LDL ("bad" cholesterol), high triglycerides, high total cholesterol and low HDL ("good" cholesterol)
  - Primary dyslipidemia (genetic) and secondary dyslipidemia (lifestyle)
  - Dyslipidemia causes atherosclerosis and increases the risk of heart attack and stroke
- Treatments for dyslipidemia include:
  - Lifestyle modification (healthy diet and exercise)
  - Medications ("statins", niacin, fibrates and bile acid sequestrants)

Drugs for Managing Cardiovascular Disease – Medications that Lower Blood Lipid Levels[2]

- HMG CoA Reductase inhibitors (the “statins”)
  - Includes atorvastatin (Lipitor), rosuvastatin (Crestor), lovastatin (Mevacor), pravastatin (Pravachol)
  - Side effects: nausea, diarrhea, muscle/joint pain, rhabdomyolysis
- Nicotinic acid/Niacin (side effects: nausea, diarrhea, facial flushing, headache, dry skin)
- The Fibrates
  - Includes fenofibrate, bezafibrate (Bezalip), gemfibrozil
  - Side effects: headache, fatigue, nausea, diarrhea, rhabdomyolysis
- Bile Acid Sequestrants
  - Includes cholestyramine, colestipol
  - Side effects: nausea, abdominal pain, diarrhea/constipation, flatulence, fatigue

Drugs for Managing Cardiovascular Disease – Medications that Lower Blood Lipid Levels (MOA)

Drug Group	Mechanism of Action	Comments
Bile Acid Sequestrants Drugs belonging to this group include Questran, LoCholest, and Colestid. Used for managing elevated LDL levels.	These drugs are not absorbed from the GI tract. They bind with bile acid to form an insoluble complex excreted in the feces. This increases the liver's utilization of cholesterol to make bile acids.	The first choice for treating elevated LDL and cholesterol levels.[3] Maximum effects occur after about one month.
Nicotinic Acid (Niacin) Brand names include Niacor, Niaspan, and Nicolar. Used to lower plasma levels of both LDLs and VLDLs.	Niacin is believed to decrease activity of the enzyme triglyceride lipase. This inhibits formation of VLDLs, and in turn LDLs.	The oldest lipid lowering drug. Produces a marked decrease in triglyceride and LDL levels and an increase in HDLs.
Fibric Acid Derivatives Drugs belonging to this group include Atromid-S, Lopid, and Tricor. Used primarily to treat high triglyceride levels.	These drugs activate the enzyme lipoprotein lipase, and may also interfere with the production and release of VLDLs by the liver.	Can reduce triglycerides by up to 45% while increasing HDLs.
HMG Co A Reductase Inhibitors Also known as the statins, these drugs are the most commonly prescribed in the U.S. Brand names include Lipitor, Baycol, Lescol, Mevacor, Pravachol, and Zocor. Used for treating elevated LDL levels.	These drugs inhibit the enzyme 3-hydroxyl-3-methyl-glutaryl coenzyme A, which is important for the synthesis of cholesterol in the liver. They also increase the number of hepatic LDL receptors. The overall effect is a reduction in LDL plasma levels.	LDL plasma levels decrease within two weeks of starting therapy. These drugs have an excellent safety and side effect profile.



Drugs for Managing Cardiovascular Disease – Quick Guide to Case History Taking

- Questions:
  - What cardiovascular disease is present? How is it being treated (lifestyle modifications, medications, alternative therapy)? Is the condition stable?
  - Regular follow-up with physician? Any exercise/hydrotherapy restrictions?
  - Poor circulation? Any numbness or sensation abnormalities?
  - Procedures for angina attack if experienced during treatment?
- Observations:
  - Presence of bruising or peripheral edema? Varicose veins?
  - Problems with shortness of breath?

Drugs for Managing Cardiovascular Disease – Quick Guide to Working with Clients with CVD

- Client positioning
  - Prone positioning may not be appropriate in clients with cardiovascular disease, especially clients with moderate/severe hypertension or recent heart surgery
  - Support and elevate areas of the body where edema is present. Do not elevate the feet above heart-level in clients with moderate/severe CHF!
- Choice of techniques
  - Relaxing/soothing techniques should be the focus of treatment! (Reduce TPR, BP and workload of the heart)
  - AVOID/MODIFY techniques including heavy tapotement, deep tissue work or trigger point release (may cause sympathetic nervous system response – fight or flight)
  - AVOID techniques that increase venous return to the heart including effleurage, petrissage, excessive elevation and large scale ROM work.
    - Wringing and muscle squeezing benefit these clients by increasing local circulation without markedly increasing venous return to he heart.
  - MODIFY depth of technique in clients with atherosclerosis and other medical conditions that predispose clients toward clotting.
    - Massage is contraindicated for known thrombus sites!

Drugs for Managing Cardiovascular Disease – General Massage Guidelines

- Be aware of ALL medications the clients is taking as well as indications and adverse reactions! Use the Medication Case History Forms to get the complete picture – Rx/OTC/herbal!
- Recall the medical stability of the patient! Schedule treatment AFTER the client's dose of medication in clients with more severe conditions, such as angina or arrhythmias.
- After lying down on the massage table for an extended period of time, sit up slowly and wait for a few minutes before standing. This is especially important in patients on medications that can cause orthostatic hypotension!
- Be aware of implanted devices, medication patches and other topical products!

Drugs for Managing Cardiovascular Disease – Specific Guidelines

- Beta-blockers can cause shortness of breath, bradycardia, hypotension, cold extremities and fatigue. Measure client BP, monitor for symptom changes and obtain client feedback more often!
- Watch for digoxin toxicity (GI irritation, confusion, visual disturbances, abnormal heart rate)!
- ACE inhibitors can cause dry cough (supine position can aggravate this), calcium channel blockers can cause ankle edema (possible referral) and nitroglycerin patches can cause irritation/rash at the application site (never remove patches and consider a referral)!
- Deep kneading, muscle stripping and cross fiber frictions are NOT RECOMMENDED in patients taking anticoagulants/platelet inhibitors/ thrombolytics!
- Diuretics may cause muscle cramping/spasm/pain/weakness! MODIFY stretching and strengthening techniques and refer to family physician!
- Lipid lowering medications can cause muscle/joint pain and rhabdomyolysis in clients! Be aware of unexplained muscle pain/weakness!

Drugs for Managing Cardiovascular Disease – Specific Guidelines

- Hydrotherapy
  - Be aware of any physician restrictions on the use of hydrotherapy as well as client's tolerance of hydrotherapy.
  - Client's with cardiovascular disease are at increased risk of hydrotherapy adverse reactions!
    - "Start low and go slow". Monitor client closely!
    - Use local treatment rather than systemic treatment!
- Exercise
  - "Start low and go slow". Monitor client closely!
  - "exercise prescription for the most compromised types of cardiovascular patients is...beyond the scope of most massage therapists...it is best to work with a healthcare team that provides the services of a qualified exercise therapist."[1]

Chapter 8: Medications for Managing Diabetes Mellitus

Medications for Managing Diabetes Mellitus – Introduction

- “Diabetes mellitus is a chronic metabolic disturbance characterized by fasting and/or postprandial hyperglycemia.” (Therapeutic Choices 6th Ed.)
- What organ is involved in diabetes mellitus?

Today, there are more than 10 million Canadians living with diabetes or prediabetes.

With more than 20 Canadians being newly diagnosed with the disease every hour of every day, chances are that diabetes affects you or someone you know.

What is diabetes?

Diabetes is a chronic, often debilitating and sometimes fatal disease, in which the body either cannot produce insulin or cannot properly use the insulin it produces. Insulin is a hormone that controls the amount of glucose (sugar) in the blood. Diabetes leads to high blood sugar levels, which can damage organs, blood vessels and nerves. The body needs insulin to use sugar as an energy source.

Canadian Diabetes Association

Medications for Managing Diabetes Mellitus – Introduction

- Type 1 diabetes (insulin-dependent)
  - Early onset, usually in childhood; 5-10% of diabetic patients
  - Pancreatic insulin production ends and patients require exogenous insulin
  - Risk factors for type 1 diabetes include autoimmune dysfunction, genetic inheritance, etc.
- Type 2 diabetes (non-insulin dependent)
  - Later onset in adulthood; 90-95% of diabetic patients (MOST COMMON)
  - Characterized by "insulin resistance" (insulin is produced but not properly utilized) or a reduction in pancreatic insulin output
  - Risk factors for type 2 diabetes include obesity, sedentary lifestyle, family history, race/ethnicity, impaired glucose tolerance, etc.
- Gestational diabetes

Medications for Managing Diabetes Mellitus – Introduction

- Complications of diabetes mellitus include
  - Neuropathy (nerve problems), retinopathy/blindness
  - Cardiovascular disease and kidney disease
  - Infections/amputation and erectile dysfunction
- Typical treatment for diabetes mellitus includes the following:
  - Lifestyle modifications (healthy diet and exercise)
  - Stress and anxiety management
  - **Insulin and/or oral hypoglycemics**
  - Regular follow-up with family physician/specialist(s)

Medications for Managing Diabetes Mellitus – Insulin

- Under normal circumstances, the pancreas secretes insulin in response to elevated serum concentration of glucose secondary to meal consumption.
  - Insulin promotes cellular uptake of glucose essential to cellular functions
- Insulin produces the following effects[1]:
  - Increased glycogen production in the liver
  - Increased uptake/utilization of glucose into cells
  - Increased synthesis/storage of fats
  - Decreased blood glucose levels
- **Synthetic insulin preparations** are indicated in the treatment of:
  - Type 1 diabetes, type 2 diabetes (usually following failed lifestyle modification/oral hypoglycemic therapy trials) and gestational diabetes

Medications for Managing Diabetes Mellitus – Insulin

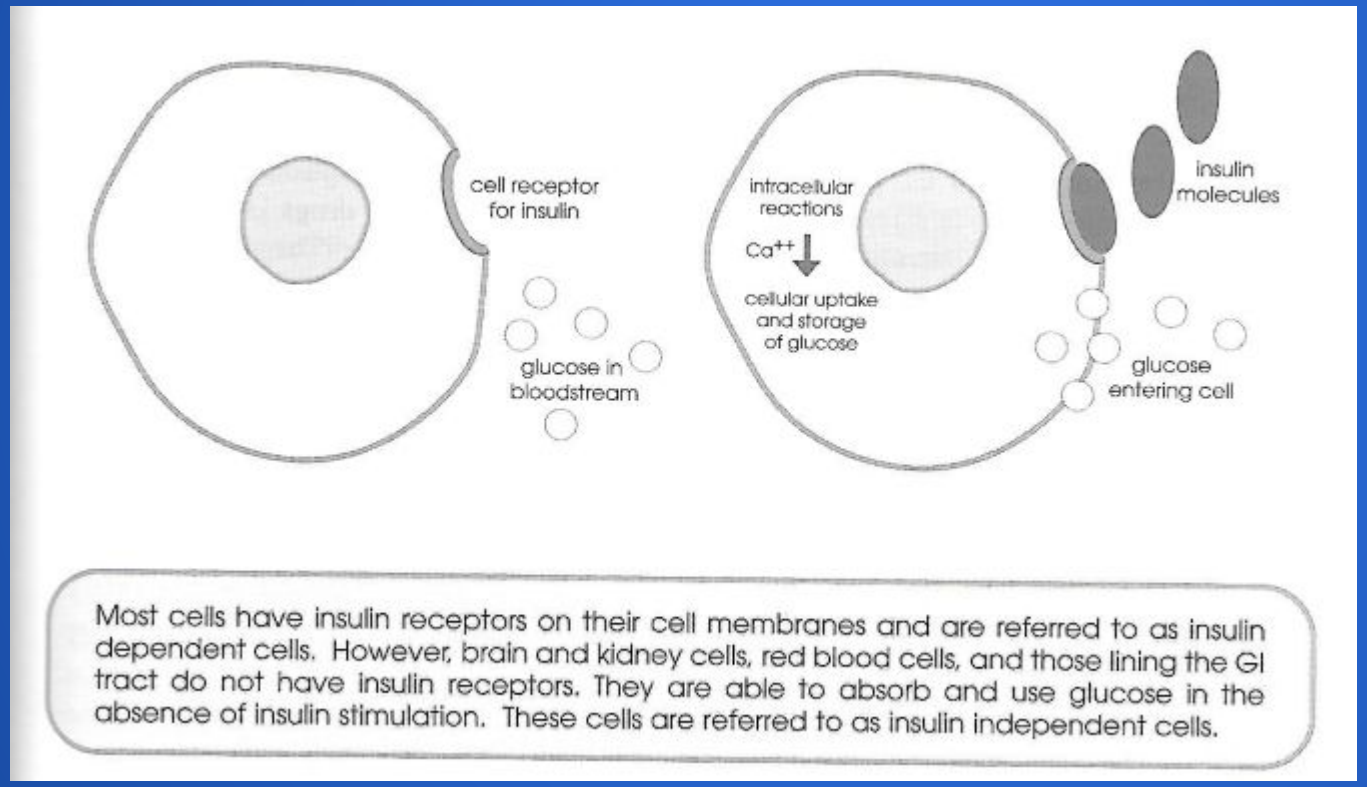
Table 1
Types of insulin

Insulin type (trade name)	Onset	Peak	Duration
Bolus (prandial) insulins			
Rapid-acting insulin analogues (clear)			
Insulin aspart (NovoRapid®)	10–15 min	1–1.5 h	3–5 h
Insulin glulisine (Apidra®)	10–15 min	1–1.5 h	3–5 h
Insulin lispro (Humalog®)	10–15 min	1–2 h	3.5–4.75 h
Short-acting insulins (clear)			
Humulin®-R	30 min	2–3 h	6.5 h
Novolin® ge Toronto			
Basal insulins			
Intermediate-acting (cloudy)			
Humulin®-N	1–3 h	5–8 h	Up to 18 h
Novolin® ge NPH			
Long-acting insulin analogues (clear)			
Insulin detemir (Levemir®)	90 min	Not applicable	Up to 24 h (glargine 24 h, detemir 16–24 h)
Insulin glargine (Lantus®)			
Premixed insulins			
Premixed regular insulin–NPH (cloudy)	A single vial or cartridge contains a fixed ratio of insulin (% of rapid-acting or short-acting insulin to % of intermediate-acting insulin)		
Humulin® 30/70			
Novolin® ge 30/70, 40/60, 50/50			
Premixed insulin analogues (cloudy)			
Biphasic insulin aspart (NovoMix® 30)			
Insulin lispro/lispro protamine (Humalog® Mix25 and Mix50)			

Physicians should refer to the most current edition of *Compendium of Pharmaceuticals and Specialties* (Canadian Pharmacists Association, Ottawa, Ontario, Canada) and product monographs for detailed information.

Canadian Diabetes Association CLINICAL PRACTICE GUIDELINES

Medications for Managing Diabetes Mellitus – Insulin MOA



Medications for Managing Diabetes Mellitus – Insulin Administration

- Insulin is self-administered in patients via subcutaneous injection
  - Multiple daily injections (type 1/type 2 insulin schedules)
  - Insulin pump
    - External device comprised of an insulin reservoir, battery-operated insulin pump and computer hardware/software responsible for regulating insulin delivery (programmed by the patient)
    - Better control of glucose levels, fewer injections for the patient
- Insulin injection sites include the abdominal wall, lateral arm, around the waist and hips, and the thigh[1]
  - Injection site rotation
- Two procedures for self-administration of insulin
  - Insulin VIALS and SYRINGES
  - Insulin PENS and CARTRIDGES

Medications for Managing Diabetes Mellitus – Oral Hypoglycemics

- Oral medications used to control blood glucose levels in diabetic patients are referred to as oral hypoglycemic drugs
  - Only indicated in the treatment of TYPE 2 DIABETES MELLITUS
  - Includes[2] sulfonylureas, biguanides, alpha-glucosidase inhibitors, thiazolidinediones, dipeptidyl peptidase IV inhibitors, glucagon-like peptide-1 receptor agonists
  - NOTE: This textbook is outdated! Keeping up-to-date on new information and advances in medicine is essential!!
- Sulfonylureas
  - Insulin secretagogue (stimulate pancreatic release of insulin from functioning beta cells secretion is enhanced, NOT production)
    - Includes gliclazide (Diamicron MR), glimepiride, glyburide
  - Side effects[2]: hypoglycemia, dizziness, headache, nausea, diarrhea/constipation

Medications for Managing Diabetes Mellitus – Oral Hypoglycemics

- Biguanides
  - Enhances insulin sensitivity (ie. cellular uptake/utilization) and decreases the production of glucose in the liver[2]
    - Includes metformin (Glucophage)
  - 1st line agent in the pharmacologic treatment of type 2 diabetes; other medications are added to existing therapy if treatment targets are not met
    - Monitoring parameters include fasting/postprandial glucose levels and A1C
  - Side effects: nausea, vomiting, diarrhea, headache, dizziness, weight-neutral
- Alpha-glucosidase inhibitors
  - Delays the absorption of glucose by inhibiting the alpha-glucosidase enzyme (responsible for metabolizing complex carbohydrates to glucose), which decreases postprandial glucose levels
  - Includes acarbose (Glucobay)
  - Side effects[3]: nausea, abdominal pain, diarrhea, headache, flatulence

Medications for Managing Diabetes Mellitus – Oral Hypoglycemics

- Thiazolidinediones (enhances insulin sensitivity)
  - Includes pioglitazone (Actos) and rosiglitazone (Avandia)
    - Avandia U.S. Boxed Warning (congestive heart failure and myocardial infarction)
  - Side effects: hypoglycemia, edema, headache, muscle pain
- Dipeptidyl peptidase IV inhibitors[2]
  - Includes sitagliptin (Januvia), saxagliptin (Onglyza)
  - Side effects: hypoglycemia, nausea, diarrhea, edema, headache
- Glucagon-like peptide-1 receptor agonists[2] (SC injection)
  - Includes liraglutide (Victoza), exenatide (Byetta)
  - Side effects: headache, nausea, diarrhea, injection site reactions

Medications for Managing Diabetes Mellitus – Diabetic Instability Reactions

- **Hypoglycemia**
  - Development of symptoms secondary to low blood glucose levels
  - Risk factors:
    - One or more oral hypoglycemic medications
    - Insulin overdose
    - Drug interactions
    - Alcohol consumption
    - Skipped meals
  - Severe hypoglycemia may result in loss of consciousness!
  - **"Always give sugar; never give insulin."**[1]
    - Seek medical attention if no improvement within 5-10 minutes!
- Hyperglycemia (high blood glucose levels)

Canadian Diabetes Association **CLINICAL PRACTICE GUIDELINES**

Table 1
Symptoms of hypoglycemia

Neurogenic (autonomic)	Neuroglycopenic
Trembling	Difficulty concentrating
Palpitations	Confusion
Sweating	Weakness
Anxiety	Drowsiness
Hunger	Vision changes
Nausea	Difficulty speaking
Tingling	Headache
	Dizziness

Table 4
Examples of 15 g carbohydrate for treatment of mild to moderate hypoglycemia

- 15 g glucose in the form of glucose tablets
- 15 mL (3 teaspoons) or 3 packets of table sugar dissolved in water
- 175 mL (3/4 cup) of juice or regular soft drink
- 6 LifeSavers (1 = 2.5 g carbohydrate)
- 15 mL (1 tablespoon) of honey

D. Clayton et al. / Can J Diabetes 37 (2013) S69–S71

Medications for Managing Diabetes Mellitus – Quick Guide to Case History Taking

- Questions
  - General health and medical conditions (presence of cardiovascular or renal disease)? Type of diabetes? Is the client stable?
  - Medications including insulin and oral hypoglycemics? Insulin self-injection or pump and associated sites? Other medications (Rx/OTC/herbal)?
  - History of hypoglycemic episodes? Carbohydrate treatment for hypoglycemia?
  - Presence of diabetic neuropathy? Abnormal sensation? Open sores/infection?
  - Physician restrictions on massage or hydrotherapy? Experience with massage therapy/hydrotherapy?
  - Self-monitoring of blood glucose? Regular follow-up with physician?
  - Last dose of medication? Last meal?
- Observations
  - Watch for open sores/infection, edema and bruising and abnormal sensation

Medications for Managing Diabetes Mellitus – Quick Guide to Working with Clients with Diabetes

- "Start low and go slow." Shorter treatment duration and targeted therapy is recommended in new diabetic clients (monitor closely)!
- Excellent hygiene is essential in diabetic clients due to their increased risk of infection. If you are sick, reschedule the appointment!
- Each session should [illegible] proper assessment of the client. Are there s[illegible]mia? Should treatment be modified or re-scheduled.

Medications for Managing Diabetes Mellitus – General Massage Guidelines

- The client's medical stability should be the top priority when developing a treatment plan for massage/hydrotherapy as well as an exercise regimen!
- Massage is contraindicated in clients experiencing hypoglycemia! Know how to help your client if they have a hypoglycemic episode!
- AVOID massage therapy for 1-2 weeks following any changes to medications!
- Schedule massage therapy/hydrotherapy appointments when medications are the most effective (peak bioavailability) to ensure the client's medical stability. Be aware that massage/hydrotherapy may cause a hypoglycemic effect – use caution and monitor the patient until you know the magnitude of effect!!
- Ensure your client has eaten sufficiently prior to each session!
- Questions or concerns? Contact the family physician!

Medications for Managing Diabetes Mellitus – Specific Guidelines

- Insulin sites
  - Recall Chapter 5: Do not treat injection sites that are red/irritated or infected! Do not work within a 4-6 inch radius of implanted/medial devices!
  - AVOID direct manual techniques/local hydrotherapy over recent injection sites!
- Oral hypoglycemic medications
  - Sulfonylureas, specifically glyburide, are notorious for causing hypoglycemia. Watch closely for symptoms of hypoglycemia!
  - Sulfonylurea/NSAID drug interaction ("NSAIDs may enhance the hypoglycemic effect of sulfonylureas"): **Lexi-Comp Risk Rating B** (no action needed)[2]
  - Shorter/specific treatment may be beneficial in clients on metformin due to adverse effects such as weakness.
  - Clients taking acarbose may want to use the washroom prior to treatment because the combination of this medication and massage can result in flatulence.

Medications for Managing Diabetes Mellitus – Specific Guidelines

- Hydrotherapy guidelines
  - "Start low and go slow." Be aware of injection sites/sensory abnormalities and ensure there is appropriate therapy modification!
  - Systemic hydrotherapy (ie. full bath, whirlpools, saunas) is NOT RECOMMENDED for diabetic patients because it may potentiate hypoglycemic episodes!
- Exercise recommendation
  - Develop a progressive exercise regimen that accounts for the client's lifestyle, current activity levels and current medications!
    - Questions or concerns? Contact the family physician!
  - Without appropriate patient education, exercise can increase the risk of hypoglycemia (especially in type 1 diabetic patients)! Careful exercise scheduling is essential!!

Chapter 9: Drugs for Managing Respiratory Inflammation and Congestion

In-Class Assignment #3 – Common Respiratory Conditions (10 minutes)

- Go to the "Asthma Society of Canada" website and answer the following questions:
  - What are "reliever" medications used in asthma treatment? Give two examples of reliever medications.
  - Find and list 3 educational resources on the Asthma Society of Canada website.

- Go to "The Lung Association" **(Canadian)** website and answer the following questions:
  - In COPD, what percentage of cases are caused by smoking?
  - Give two examples of common COPD medications.

Drugs for Managing Respiratory Inflammation and Congestion – Introduction

- The respiratory system, which consists of the upper and lower respiratory tracts, is responsible for the addition of inhaled oxygen to the bloodstream and removal of wastes, such as carbon dioxide, that are subsequently exhaled.
  - Chronic irritation, infection and disease can all impact the respiratory system!
- Common respiratory conditions include ASTHMA, COPD (emphysema and chronic bronchitis) and ALLERGIES/ALLERGIC RHINITIS

Muscles of Inspiration	Muscles of Expiration
Primary diaphragm internal intercostals **Secondary** scalenes sternocleidomastoid pectoralis muscles upper trapezius levator scapula quadratus lumborum	**Primary** none (passive process) **Secondary** abdominals external intercostals low back muscles

Upper Respiratory Tract consists of nasal cavities, sinuses, pharynx, tonsils, and larynx

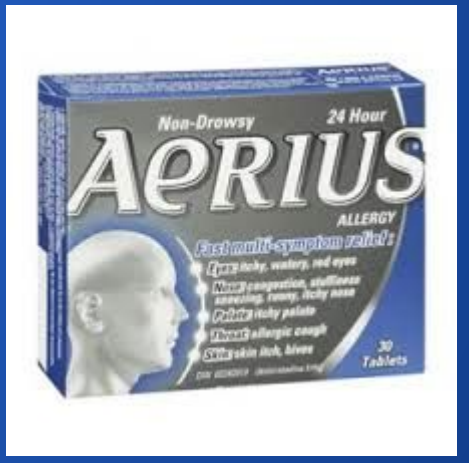
Lower Respiratory Tract consists of trachea, bronchi, bronchioles, and alveoli

Drugs for Managing Respiratory Inflammation and Congestion – Introduction

- Asthma
  - Chronic respiratory condition characterized by episodes of shortness of breath, wheezing, chest tightness, cough and mucus production
    - Airways are inflamed, constricted and hyper-responsive to stimuli
  - Asthma is a hereditary condition
  - Triggers include cold air/water, pollen, air pollutants, moulds, animals, exercise, etc.
- Chronic obstructive pulmonary disease (COPD)
  - Progressive respiratory condition characterized by shortness of breath, chronic cough and mucus production
    - Includes chronic bronchitis (airway inflammation/mucus production) and emphysema (damage to alveoli in the lungs)
  - COPD is most commonly caused by SMOKING
  - Triggers include respiratory infections, air pollutants, cold air, etc.
- Allergies/allergic rhinitis (sneezing, itchy/watery eyes, runny nose, nasal congestion)

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Treat/Manage Allergic Reactions

- Antihistamines
  - Antihistamines are indicated in the treatment of allergic rhinitis, hypersensitivity reactions, insomnia and cough
  - Antihistamines reduce allergic symptoms, such as sneezing or runny nose, by preventing histamine (released from mast cells) from binding to the various H1 receptor sites in the body
    - Includes chlorpheniramine (Chlor-Tripolon), diphenhydramine (Benadryl), loratadine (Claritin, cetirizine (Reactine), etc.
  - "Effects of Histamine" Table (page 148)
  - Side effects of antihistamines
    - 1st generation (ie. Benadryl/Chlor-Tripolon): drowsiness
    - 2nd generation (ie. Claritin/Reactine): well tolerated



Drugs for Managing Respiratory Inflammation and Congestion – Medications that Treat/Manage Allergic Reactions

- Cromolyn sodium
  - Indicated in the treatment of allergic rhinitis/conjunctivitis
  - Prevents histamine release by stabilizing mast cell membranes which prevents allergic symptoms
    - Includes NasalCrom and Opticrom
  - Side effects: well tolerated

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Increase Airway Diameter

- Also known as “bronchodilators”
  - Indicated in the treatment of asthma, COPD and respiratory infections
  - Includes beta-2 adrenergic agonists, anticholinergic agents and theophylline (not commonly used)
- Beta-2 adrenergic agonists
  - Includes salbutamol (Ventolin), formoterol (with budesonide in Symbicort Turbuhaler), salmeterol (Serevent Diskus)
  - Mechanism of action: stimulates beta-2 receptors, which causes bronchial smooth muscle relaxation, leading to bronchodilation
    - Salbutamol is a “RELIEVER” medication that treats acute bronchospasm within a few minutes
  - Side effects: shakiness, headache, dizziness, nausea

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Increase Airway Diameter

- Anticholinergic agents
  - Includes ipratropium (Atrovent) and tiotropium (Spiriva Handihaler)
  - Mechanism of action[2]: causes bronchodilation by occupying parasympathetic receptor sites in bronchial smooth muscle, which blocks the effects of acetylcholine (normally causes bronchoconstriction!)
  - Side ef ness, nausea, dr

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Manage Respiratory Congestion

- Nasal congestion and chest congestion are typically caused by infection, inflammation and irritation, resulting in symptoms such as stuffy/runny nose or productive cough
  - Medications used to treat respiratory congestion include decongestants, expectorants and corticosteroids
- Decongestants
  - Includes pseudoephedrine/phenylephrine (common in cough and cold preparations)
  - Mechanism of action: stimulates alpha receptors causing vasoconstriction, which leads to a decrease in mucus production and edema (ie. nasal congestion)
  - Side effects: generally well tolerated, but can cause increased blood pressure and heart rate, dizziness, excitability, nausea
- Expectorants (ie. guaifenesin)

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Manage Respiratory Congestion

- Corticosteroids
  - Corticosteroids are used to managed inflammation associated with asthma/COPD and allergic rhinitis (usually ongoing therapy)
    - Referred to as “controller” medications in asthma treatment
    - Sometimes prescribed for respiratory infections (discuss)
  - Includes fluticasone inhalation (Flovent), fluticasone nasal spray (Flonase and Avamys), budesonide inhalation (Pulmicort), mometasone nasal spray (Nasonex), beclomethasone inhalation (QVAR), etc.
    - Also asthma/COPD combination products such as Advair/Symbicort
  - Side effects: hoarseness, cough, throat irritation, oral thrush

Drugs for Managing Respiratory Inflammation and Congestion – Medications that Suppress Coughing

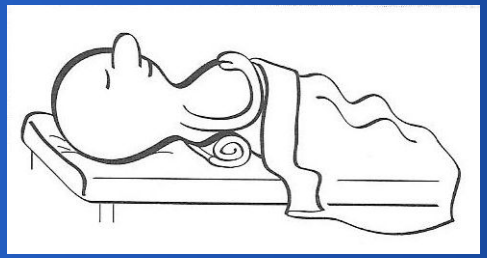
- Also known as “antitussives” (typically found in cough and cold preparations)
- Common antitussive medications include:
  - Dextromethorphan (DM)
  - Diphenhydramine
  - Codeine
- Side effects: drowsiness!!

Drugs for Managing Respiratory Inflammation and Congestion – Quick Guide to Case History Taking

- Questions
  - General health and medical conditions? Respiratory conditions? What medications are used to treat the condition? Is the condition stable? History of hospitalization?
  - For asthma and allergies, what are the client's triggers?
  - Does the client use a metered-dose inhaler? Is it a "reliever" inhaler?
  - Regular follow-up with physician/specialist? Last appointment? Physician restrictions on massage or hydrotherapy?
  - Exercise tolerance? History of shortness of breath?
- Observations
  - Watch for thoracic posture (Hyperkyphosis? Barrel chest?), status of the muscles of respiration, breathing patterns (Shortness of breath? Wheezing?) and allergic symptoms (runny noses, watery eyes, sneezing)

Drugs for Managing Respiratory Inflammation and Congestion – Quick Guide to Working with Clients with Respiratory Conditions

- Massage is contraindicated during an asthma attack or respiratory infection!
  - Begin with shorter treatments and closely monitor the client's response to therapy before progressing to longer and/or more intense treatment.
    - Unsure about treatment? Contact the client's physician!
- Client positioning
  - Semi-supine/seated positions are advisable in client's with nasal congestion or sinusitis. Supine/prone position may be problematic for clients with asthma.
  - "Towel rolls/small bolsters can be used to stretch thoracic structures during massage treatment."[1] (full description in the textbook)
- Choice of techniques
  - Typically, specific work to muscles of respiration and joints of the thoracic spine will result in benefit to the client. It may be necessary to modify direct manual techniques in the presence of tissue fragility.
  - Tapotement on the back is not recommended in clients with asthma (may cause bronchospasm) but can be beneficial in clients with chest congestion to promote expectoration of mucus and phlegm.



Drugs for Managing Respiratory Inflammation and Congestion – General Massage Guidelines

- NSAID medications (ie. aspirin and ibuprofen) and beta-blockers (ie. metoprolol, atenolol, propranolol and nadolol) can cause asthma attacks! These medications can lead to increased use of asthma medications.
  - These clients should be referred to their family physician!
- Ensure your client is comfortable and have drinking water available in the event of throat irritation or coughing episodes!
- Set aside additional treatment time to provide specific work on the muscles of respiration!

Drugs for Managing Respiratory Inflammation and Congestion – Specific Guidelines

- SHORTER TREATMENT may be necessary in clients experiencing increased drowsiness or fatigue secondary to antihistamine use!
- In clients using bronchodilators, tapotement, especially on the back, is NOT RECOMMENDED because it may promote exaggerated cardiovascular and respiratory reactions![1]
- Decongestants can be of concern when they cause increased blood pressure and heart rate in the client. Monitor your client and measure blood pressure regularly!
  - Not usually an issue – decongestants are typically short-term treatment!
- Dextromethorphan and altered sensory perception? (discuss)

Drugs for Managing Respiratory Inflammation and Congestion – Specific Guidelines

- Hydrotherapy guidelines
  - Be aware of physician restrictions on hydrotherapy!!
  - Ask your client if they have sensitivities to essential oils or bath additives. If the client is unsure, begin therapy with water modalities only, then gradually introduce additives!
  - In clients taking decongestant medications, monitor blood pressure during hydrotherapy because the client's heat dissipation responses to temperature may be altered (can lead to irregular heart beat and increased blood pressure).
  - AVOID facial steams in patients taking decongestants (both oral or nasal) because even in the presence of heat, nasal passage blood vessels won't vasodilate as expected and could result in client burns!!
    - Why?
- Exercise recommendation
  - Adequate hydration during exercise is important in clients taking decongestants and antihistamines (can cause increased sweating)!
  - Develop a progressive exercise regimen that accounts for the client's current activity levels and exercise tolerance (ie. presence of exercise or environmental triggers)!
    - When in doubt, contact the client's physician!

Chapter 10: Drugs for Managing Mood and Emotional Disorders

In-Class Assignment #4 – Mood and Emotional Disorders (10 minutes)

- Go to the "Canadian Mental Health Association" website and answer the following questions:
  - When is the 64th Annual Mental Health Week?
  - List two different types of anxiety disorders.
  - Explain how depression is different from the "blues".
  - Where is the Winnipeg branch of the Canadian Mental Health Association?
  - What is the main benefit of these in-class assignments to massage therapy students?

Drugs for Managing Mood and Emotional Disorders – Introduction

Fast Facts about Mental Illness

Who is affected?

- Mental illness indirectly affects all Canadians at some time through a family member, friend or colleague.
- 20% of Canadians will personally experience a mental illness in their lifetime.
- Mental illness affects people of all ages, educational and income levels, and cultures.
- Approximately 8% of adults will experience major depression at some time in their lives.
- About 1% of Canadians will experience bipolar disorder (or "manic depression").

How common is it?

- Schizophrenia affects 1% of the Canadian population.
- Anxiety disorders affect 5% of the household population, causing mild to severe impairment.
- Suicide accounts for 24% of all deaths among 15-24 year olds and 16% among 25-44 year olds.
- Suicide is one of the leading causes of death in both men and women from adolescence to middle age.
- The mortality rate due to suicide among men is four times the rate among women.

What causes it?

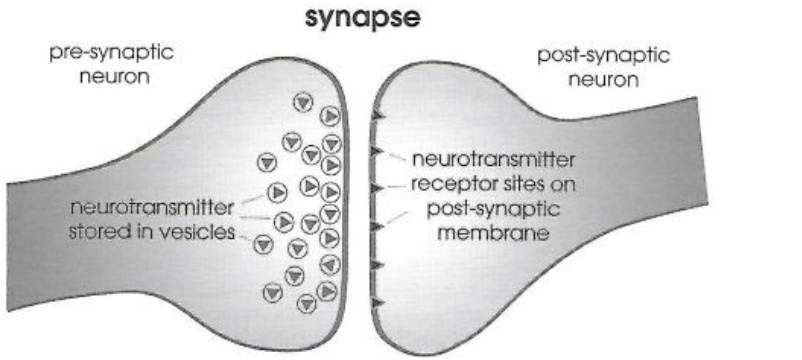
- A complex interplay of genetic, biological, personality and environmental factors causes mental illnesses.
- Almost one half (49%) of those who feel they have suffered from depression or anxiety have never gone to see a doctor about this problem.
- Stigma or discrimination attached to mental illnesses presents a serious barrier, not only to diagnosis and treatment but also to acceptance in the community.
- Mental illnesses can be treated effectively.

Canadian Mental Health Association
Mental health for all

Drugs for Managing Mood and Emotional Disorders – Introduction

- Mood and emotional disorders are also known as "AFFECTIVE DISORDERS".
- This section of the textbook will review the following affective disorders:
  - Anxiety, depression and psychosis
- Episodes of anxiety and/or low mood are generally not a significant cause for concern as long as these episodes are short-lived.
  - Ie. anxiety prior to an upcoming examination or course lecture
  - Ie. low mood following a break-up or after losing a job
- However, when these episodes of anxiety and/or depression are persisting long-term and impacting daily life and normal functioning, a diagnosis will be made and medication is usually necessary!
  - Affective disorders are caused by imbalances of neurotransmitters in the brain
  - Implicated neurotransmitters in affective disorders include SEROTONIN, NOREPINEPHRINE and DOPAMINE (too little)
- Medications employed in the treatment of affective disorders include anxiolytics, antidepressants and antipsychotics

Drugs for Managing Mood and Emotional Disorders – Introduction



Each neuron produces its own neurotransmitter, which it stores in specialized vesicles. Stimulation of the pre-synaptic neuron results in the neurotransmitter substance being released into the synapse. It traverses the 'gap' to the post-synaptic neuron where it occupies its receptor sites. Depending on whether the transmitter is an inhibitory or excitatory chemical, the post-synaptic neuron is either inhibited or excited. Once the neurotransmitter has relayed its message it is removed from the synapse.

The drugs used to treat anxiety, depression, and psychosis produce their therapeutic effects by targeting neurons, their receptors, and neurotransmitter activity in a variety of ways.

Drugs for Managing Mood and Emotional Disorders – Anti-Anxiety Medications

Anxiety Disorder Classification		Characteristics
Panic Disorder		Episodes of intense fear that strike often and without warning. Physical symptoms include chest pain, heart palpitations, shortness of breath, dizziness, abdominal distress, feelings of unreality, and fear of dying.
Obsessive-Compulsive Disorder		Repeated unwanted thoughts or compulsive behaviors that seem impossible to stop or control.
Post-Traumatic Stress Disorder		Persistent symptoms that occur after a traumatic event such as a rape or other criminal assault, war, child abuse, a natural disaster, or a crash. Symptoms include nightmares, flashbacks, numbing of emotions, depression, anger, irritability, distraction, and being easily startled.
PHOBIAS	Specific Phobia	Experience of extreme, disabling, and irrational fear of something that poses little or no actual danger.
	Social Phobia	An overwhelming and disabling fear of scrutiny, embarrassment, or humiliation in social situations.
Generalized Anxiety Disorder		Constant and exaggerated worrisome thoughts and tension about routine life events and activities, lasting at least six months. The person tends to anticipate the worst even though there is little reason to expect it. Physical symptoms include fatigue, trembling, muscle tension, headache, and nausea.

Drugs for Managing Mood and Emotional Disorders – Anti-Anxiety Medications

- Benzodiazepines
  - VERY COMMON family of medications indicated in the treatment of anxiety, insomnia and epilepsy
  - Includes diazepam (Valium), lorazepam (Ativan), temazepam (Restoril), alprazolam (Xanax), clonazepam (Rivotril), etc.
  - Mechanism of action[2]: Enhances the inhibitory actions of GABA (neurotransmitter) by binding to benzodiazepine receptors on postsynaptic GABA neurons in the central nervous system. This causes calcium influx into the neurons leading to a less excitable state.
  - Side effects: dizziness, drowsiness, fatigue, headache, nausea, diarrhea

Drugs for Managing Mood and Emotional Disorders – Anti-Anxiety Medications

- Buspirone
  - Less commonly used medication indicated in the treatment of generalized anxiety disorder (GAD). Buspirone is also used off-label as augmentation therapy with antidepressant medications.
  - Mechanism of action: unknown (high affinity for serotonin receptors)
  - Side effects: dizziness, drowsiness, headache, nausea
- NOTE: This textbook is outdated! Keeping up-to-date on new information and advances in medicine is essential!!
  - Several of the following medications are not mentioned in the textbook!

Drugs for Managing Mood and Emotional Disorders – Antidepressant Medications

Type of Depression	Characteristics
Major Depression (clinical depression)	Most common type of depression. At least five of the major symptoms of depression are present.
Dysthymia	Second most common type of depression. A milder form – sufferers may present with only two or three symptoms and are often undiagnosed and undertreated. Can last two years or more.
Bipolar Depression	The depressive phase of a manic-depressive mood disorder, in which the person experiences extreme highs and lows. Symptoms are very similar to major depression.
Seasonal Affective Disorder	Usually occurs in the winter months and is associated with absence of sunlight. Tends to resolve in the spring and summer months. Typical symptoms include loss of energy, decreased activity, sadness, and excessive eating and sleeping.
Other	Post-partum, drug induced, pain induced, endogenous, and reactive types.

GENERAL SIGNS AND SYMPTOMS OF DEPRESSION

Persistent sad mood
Loss of interest in ordinary activities
Loss of interest in sex
Decreased energy, fatigue
Sleep disturbances
Eating disturbances (loss of appetite and weight, or weight gain)
Difficulty concentrating and remembering
Poor self confidence
Difficulty making decisions
Feelings of guilt, worthlessness, helplessness
Thoughts of death and/or suicide
Suicide attempts
Irritability
Excessive crying
Chronic aches and pains that do not respond to treatment
Decreased productivity
Absenteeism
Alcohol and drug abuse

Drugs for Managing Mood and Emotional Disorders – Antidepressant Medications

- "Approximately 8% of adults will experience major depression at some point in their lives." (CMHA)
- Major depression
  - Presence of depressive symptoms, nearly every day, for at least two weeks
  - Symptoms include depressed mood, loss of interest, sleep disturbances, eating disturbances, difficulty concentrating, decreased productivity, fatigue, feelings of worthlessness or guilt, etc.
  - Medications indicated in the treatment of depression include:
    - Anxiolytics
    - Antidepressants (selective serotonin reuptake inhibitors (SSRIs) and serotonin/norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants, bupropion, mirtazapine, trazodone
    - Not common (augmentation therapy): lithium carbonate, antipsychotic medications

Drugs for Managing Mood and Emotional Disorders – Antidepressant Medications

- Selective serotonin reuptake inhibitors (SSRIs)
  - Common medications typically used in the treatment of depression, anxiety, obsessive-compulsive disorder and panic disorder
    - Includes citalopram (Celexa), fluoxetine (Prozac), sertraline (Zoloft), paroxetine (Paxil), etc.
  - Mechanism of action[2]: increases serotonin activity in the brain by inhibiting the presynaptic reuptake of serotonin from the synapse
    - Usually takes 4-6 weeks for noticeable symptom improvement
  - Side effects: headache, drowsiness, fatigue, nausea, dry mouth, yawning, sweating
- Serotonin/norepinephrine reuptake inhibitors (SNRIs)
  - Similar to SSRIs
  - Includes venlafaxine (Effexor) and duloxetine (Cymbalta)

Drugs for Managing Mood and Emotional Disorders – Antidepressant Medications

- Tricyclic antidepressants
  - Medications indicated in the treatment of depression, chronic pain, post-traumatic stress disorder, insomnia, etc.
    - Includes amitriptyline (Elavil), imipramine (Tofranil), doxepin (Silenor)
  - Mechanism of action[2]: inhibition of serotonin/norepinephrine reuptake by presynaptic neurons in the central nervous system
  - Side effects: dizziness, drowsiness, orthostatic hypotension, tachycardia, nausea, dry mouth, constipation, blurred vision, sweating
- Bupropion
  - Dopamine-reuptake inhibitor indicated in the management of depression (mono/combo therapy) and smoking cessation
    - Includes Wellbutrin XL/SR and Zyban
  - Side effects: headache, dizziness, dry mouth, increased sweating, tachycardia

Drugs for Managing Mood and Emotional Disorders – Antidepressant Medications

- Mirtazapine
  - Indicated in the treatment of depression (sometimes prescribed for insomnia)
    - Includes Remeron
  - Mechanism of action[2]: alpha-2 adrenergic antagonist that enhances serotonin/norephephrine release into the synapse in the central nervous system
  - Side effects: dizziness, drowsiness, dry mouth, abdominal pain
- Trazodone
  - Serotonin reuptake inhibitor/antagonist[2] that is indicated in the treatment of depression and insomnia
    - Includes Oleptro
  - Side effects: dizziness, drowsiness, fatigue, nausea

Drugs for Managing Mood and Emotional Disorders – Antipsychotic Medications

- "Psychosis is a major emotional disorder characterized by personality disintegration and loss of contact with reality."[1]
- One common chronic mental disorder that encompasses psychotic behaviour is **schizophrenia**
  - Affects 1% of the Canadian population (CMHA)
  - Caused by an imbalance of the neurotransmitter, dopamine (too much)
  - Symptoms include disorganized thought, delusions, hallucinations, anxiety, agitation, hostility, paranoia, etc.
  - Managed with first generation antipsychotics ("typical" antipsychotics) and second generation antipsychotics ("atypical" antipsychotics)
- Antipsychotics are also indicated in the treatment of bipolar disorder and major depression with psychotic features

Drugs for Managing Mood and Emotional Disorders – Antipsychotic Medications

- First generation ("typical") antipsychotics
  - Includes haloperidol (Haldol), perphenazine, chlorpromazine, methotrimeprazine
  - Mechanism of action[2]: reduces psychotic symptoms by occupying and blocking postsynaptic dopamine receptors in the brain
  - Side effects: headache, drowsiness, constipation, dry mouth, nausea, tachycardia, tardive dyskinesia
  - Recall medications affecting body temperature control mechanisms (ie. methotrimeprazine, perphenazine, prochlorperazine[2] can affect body temperature regulation) and the resulting hydrotherapy implications
- Second generation ("atypical") antipsychotics
  - Includes risperidone (Risperdal), clozapine (Clozaril), olanzapine (Zyprexa), quetiapine (Seroquel), aripiprazole (Abilify), etc.
  - Mechanism of action: dopamine AND serotonin receptor antagonists
  - Side effects: drowsiness, fatigue, weight gain, nausea, constipation, orthostatic hypotension

Drugs for Managing Mood and Emotional Disorders – Quick Guide to Case History Taking

- Questions
  - Medical conditions including mood disorders? Current medications?
  - Client's goals for massage therapy? Tried massage therapy in the past?
  - Support system available (ie. friends and family)?
  - Presence of life stressors/destabilizing factors (ie. poor diet, lack of sleep, work stress, relationships, alcohol)?
- Observations
  - Is the client focused and attentive?
  - Is the client cooperative during case history taking?
  - Watch for postural holding patterns (may help identify areas of tension) and breathing patterns (rapid/shallow breathing indicates stress)

Drugs for Managing Mood and Emotional Disorders – Quick Guide to Working with Clients with Affective Disorders

- Prior to therapy, review your treatment plan with the client including techniques used and body areas involved to ensure your client is comfortable with the proposed therapy!
- Be sensitive, show acceptance and listen to your client!
- "Start low and go slow!" First time clients may benefit from SHORTER treatments (monitor client response and slowly introduce new techniques)!
- Choice of techniques
  - AVOID deep/aggressive techniques that can cause anxiety in your client
  - The goal of therapy is to create a nurturing and relaxing environment for the client! Very gentle/standard techniques are appropriate in this situation!
  - Communicate with your client! Tell your client what you are going to do to ensure your client is comfortable and there are no surprises!

Drugs for Managing Mood and Emotional Disorders – General Massage Guidelines

- Be aware of common side effects of medications used in affective disorders and monitor clients for adverse reactions or unexpected symptoms!
- Headache is a common side effect of affective disorder medications! Consider that headache may be a side effect rather than a symptom!
  - May warrant a referral to the physician
- Massage treatment may amplify side effects of dizziness/drowsiness and lightheadedness, which are very common to these medications! SHORTER treatment may be necessary and ensure your client gets up SLOWLY after therapy!
- Identify medication injection sites (ie. Risperdal Consta) your client may have and take appropriate action!

Drugs for Managing Mood and Emotional Disorders – Specific Guidelines

- SHORTER/LIGHTER treatment may be advisable in clients taking benzodiazepines (ie. fatigue/drowsiness)! If the physician is not aware of these side effects or they are severe in nature, re-schedule the appointment and refer your client to their physician!
- USE CAUTION or AVOID stretching techniques in clients on benzodiazepines (or muscle relaxants)! Why?
- AVOID deep work/stretching techniques in clients experiencing muscle spasms or movement disorders secondary to first generation ("typical") antipsychotics! Soothing relaxation work is appropriate in this situation!
- Watch for orthostatic hypotension in clients taking second generation ("atypical") antipsychotic medications!

Drugs for Managing Mood and Emotional Disorders – Specific Guidelines

- Hydrotherapy guidelines
  - Be aware of physician restrictions on the use of hydrotherapy!! Measure client blood pressure before/after treatment and monitor closely during treatment!
  - LOCAL hydrotherapy with MODIFIED temperatures is recommend in clients taking benzodiazepines (CNS depressants)!
  - MODIFY temperature and treatment duration in clients taking TCAs/SSRIs (these medications cause increased sweating and, when combined with hydrotherapy, can lead to dehydration!)
  - Systemic hot/cold hydrotherapy is CONTRAINDICATED in clients taking phenothiazines (ie. first generation antipsychotics) because they can affect temperature regulation in the body!
- Exercise recommendation
  - Develop a progressive exercise regimen that is approved by the client's physician!
  - Encourage adequate hydration in clients taking TCAs and SSRIs!
  - Clients taking phenothiazines should AVOID vigorous exercise, especially in hot/sunny environments!

Chapter 11: Drugs for Managing Cancer

Drugs for Managing Cancer – Introduction

Canadian Cancer Society | Société canadienne du cancer

What is cancer?

Cancer is a disease that starts in our cells. Our bodies are made up of millions of cells, grouped together to form tissues and organs such as muscles and bones, the lungs and the liver. Genes inside each cell order it to grow, work, reproduce and die. Normally, our cells obey these orders and we remain healthy. But sometimes the instructions get mixed up, causing the cells to form lumps or tumours, or spread through the bloodstream and lymphatic system to other parts of the body.

Tumours can be either benign (non-cancerous) or malignant (cancerous). Benign tumour cells stay in one place in the body and are not usually life-threatening.

Malignant tumour cells are able to invade nearby tissues and spread to other parts of the body. Cancer cells that spread to other parts of the body are called metastases.

The first sign that a malignant tumour has spread (metastasized) is often swelling of nearby lymph nodes, but cancer can metastasize to almost any part of the body. It is important to find malignant tumours as early as possible.

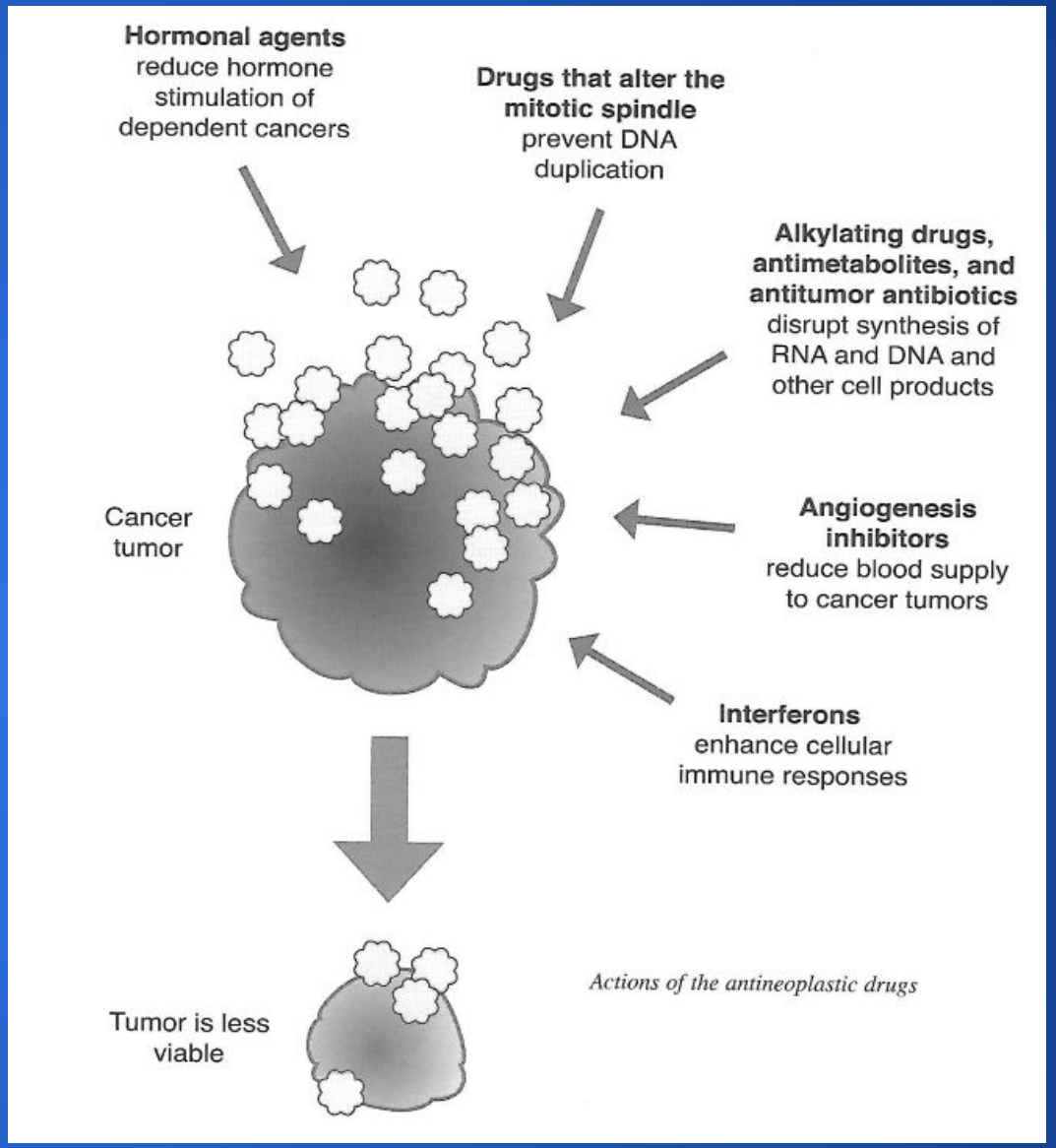
Cancers are named after the part of the body where they start. For example, cancer that starts in the bladder but spreads to the lung is called bladder cancer with lung metastases.

Drugs for Managing Cancer – Introduction

Drugs for Managing Cancer – Introduction

- According to the Mayo Clinic, “Cancer refers to any one of a large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer also has the ability to spread throughout your body.”
- The following medical approaches can be used in the treatment of cancer:
  - Surgery
  - Radiation therapy
  - Chemotherapy (oral/IV treatment)
  - Monoclonal antibodies
- The goals of chemotherapy include the following:
  - Slowing tumour growth/cancer spread, controlling pain, improving quality of life and attaining remission/cure
- Chemotherapy medications include antineoplastic drugs and antiemetics

Drugs for Managing Cancer – Antineoplastic Medications – Mechanism of Action Overview



Drugs for Managing Cancer – Antineoplastic Medications

- **Medications affecting cancer cell replication:**
- Alkylating agents (cyclophosphamide, cisplatin, carboplatin)
- Antimetabolites (fluorouracil, capecitabine)
- Antitumor antibiotics (doxorubicin, daunorubicin, bleomycin, epirubicin)
- Medications that affect mitotic spindle (paclitaxel, irinotecan, vinblastine)

Drugs for Managing Cancer – Antineoplastic Medications

- **Medications affecting tumor growth:**
- Hormonal agents (tamoxifen, anastrozole, bicalutamide, nilutamide)
- Interferons (interferon alfa-2b/Intron-A, peginterferon alfa-2b/Peg-Intron)
- Angiogenesis inhibitors (bevacizumab/Avastin, sunitinib/Sutent)

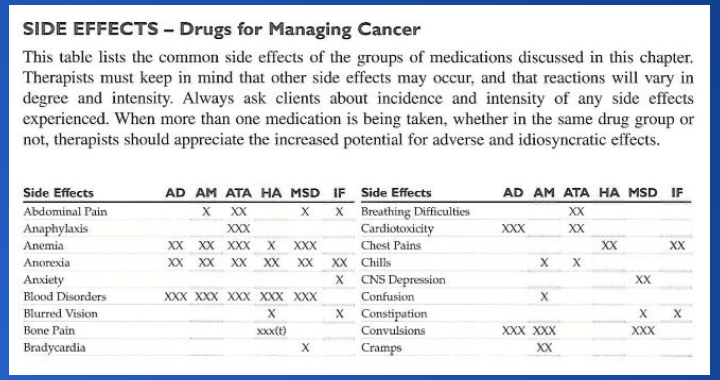
Drugs for Managing Cancer – Antiemetic Medications

- Antiemetic medications are prescribed
  for nausea and vomiting associated with chemotherapy

The Common Anti-Emetic Drugs

DRUG	MECHANISM OF ACTION	SIDE EFFECTS
Scopolamine (Transderm ScÇp) Dimenhydrinate (Dramamine) Meclizine (Antivert, Bonine) Hydroxyzine (Atarax, Vistaril)	These drugs occupy histamine and cholinergic receptor sites in the vestibular area.	Refer to the information about antihistamines in Chapter 9.
Metoclopramide (Reglan)	This drug can block dopamine and serotonin receptor sites. It reduces stimulation of the CTZ and increases normal emptying of the stomach and GI tract.	Very similar to the phenothiazines. Refer to Chapter 10.
Chlorpromazine (Thorazine) Prochlorperazine (Compazine) Thiethylperazine (Torecan) Perphenazine (Trilafon) Haloperidol (Haldol) Droperidol (Inapsine)	These drugs act within the CTZ to occupy/block dopamine receptor sites.	Refer to the information about phenothiazines in Chapter 10.
Dexamethasone (Decadron)	This drug's exact mechanism of action in achieving its anti-emetic effects is not known. Often used in combination with other drugs.	Belongs to the corticosteroid group. Refer to Chapter 6.
Ondansetron (Zofran) Granisetron (Kytril)	These drugs, called the selective 5-HT3 inhibitors, occupy/block specific serotonin receptor sites in the stomach, on the vagus nerve, in the CTZ, and in an area called the solitary tract nucleus.	Headaches, malaise, fatigue, constipation, diarrhea, abdominal pain, weakness, anxiety, dry mouth, dizziness, shivers, hypotension, skin rash.

Drugs for Managing Cancer – Side Effects



SIDE EFFECTS – Drugs for Managing Cancer

This table lists the common side effects of the groups of medications discussed in this chapter. Therapists must keep in mind that other side effects may occur, and that reactions will vary in degree and intensity. Always ask clients about incidence and intensity of any side effects experienced. When more than one medication is being taken, whether in the same drug group or not, therapists should appreciate the increased potential for adverse and idiosyncratic effects.

Side Effects	AD	AM	ATA	HA	MSD	IF	Side Effects	AD	AM	ATA	HA	MSD	IF
Abdominal Pain		X	XX		X	X	Breathing Difficulties			XX			
Anaphylaxis			XXX				Cardiotoxicity	XXX		XX			
Anemia	XX	XX	XXX	X	XXX		Chest Pains				XX		XX
Anorexia	XX	XX	XX	XX	XX	XX	Chills		X	X			
Anxiety						X	CNS Depression					XX	
Blood Disorders	XXX	XXX	XXX	XXX	XXX		Confusion		X				
Blurred Vision				X		X	Constipation					X	X
Bone Pain				xxx(t)			Convulsions	XXX	XXX			XXX	
Bradycardia					X		Cramps		XX				

- Please refer to the textbook for common side effects of antineoplastic medications and antiemetics! General guidelines for antineoplastic/antiemetic medications:
  - Antineoplastic medications cause NAUSEA and VOMITING
  - Antiemetic medications cause DIZZINESS and DROWSINESS (except dexamethasone)
  - Clients will be monitored closely by their ONCOLOGIST and have routine medical appointments/bloodwork to assess for adverse effects!
- When dealing with clients taking cancer medications, look up the side effect profile for EACH DRUG!! If you have questions or concerns regarding adverse effects of medications or effects of massage therapy, contact the client's physician/oncologist!
- Refer to other drug resources such as Lexi-Comp and the CPS!!

Drugs for Managing Cancer – Unique Side Effects of Select Anticancer Drugs

Drugs for Managing Cancer – Quick Guide to Case History Taking

- Questions
  - Type of cancer? Current cancer treatment (surgery, radiation, chemotherapy)?
  - Prescription medications, over-the-counter products, alternative therapy, etc.?
  - If surgery has been done: What was removed? What is the condition of the area? Presence of abnormal sensation, edema, decreased range of motion?
  - If radiation has/is being done: What area is involved? What is the condition of the area? Current skin integrity? Abnormal sensation? Radiation protocol? Massage therapy restrictions?
  - What is the chemotherapy protocol? Adverse effects? Is the client fatigued or in a weakened state? Previous experience with massage therapy? Goals for massage therapy?
  - Oncologist/physician restrictions on massage therapy/hydrotherapy?
- Observations
  - Watch for general posture, protective holding patterns, skin integrity, presence of skin irritation/infection and abnormal sensation!

Drugs for Managing Cancer – Quick Guide to Working with Cancer Patients

- Get frequent feedback from your client and adjust treatment accordingly!
- Schedule massage appointments AFTER chemotherapy days to allow the client to recover (can be 1-2 days or longer)!
- "Start low and go slow." Monitor client response with shorter/lighter therapy before progressing to longer/more intense therapy! Involve the medical team!
- Be ready to postpone appointments in the event that your client is not feeling well! Encourage your patients to reschedule in these situations!
- Ensure that your treatment approach is focused on relaxation and that your client is comfortable (use pillows, towels, etc.)!

Drugs for Managing Cancer – General Massage Guidelines

- Be aware of all your client's medications! Ask your client about medication changes and the presence of side effects! Use drug references when needed (ie. Lexi-Comp, CPS, Merck Manual, etc.)
- If the client is experiencing severe adverse effects or showing signs of toxicity (ie. refer to drug monographs), reschedule treatment and refer your client to their oncologist!
- Excellent hygiene practices are essential when working with cancer patients because antineoplastic medications can cause immunosuppression! If you (or your client) are sick, reschedule the appointment!
- Monitor your clients blood pressure routinely and watch for dizziness, lightheadedness and orthostatic hypotension!
- Be ready to end treatment early in the event of a fatigued client! Be aware of injection sites and implant devices!

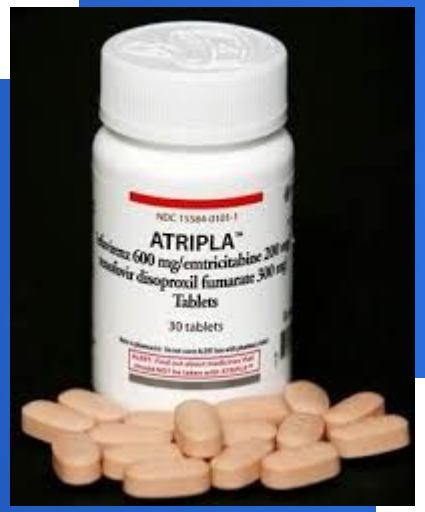
Drugs for Managing Cancer – Specific Guidelines

- In clients taking alkylating agents, avoid local massage in areas of severe peripheral neuropathy!
- In clients taking tamoxifen (hormonal agent that increases the risk of DVT), local massage is contraindicated if a clot is suspected (unilateral presentation; WARM, SWOLLEN and PAINFUL leg)! Seek immediate medical attention!
- In clients taking medications affecting the mitotic spindle (ie. paclitaxel), watch for signs of bowel obstruction (constipation, increasing distension and pain)! If present, seek immediate medical attention!
- Shorter treatments may be necessary in clients using interferon preparations because these medications can affect mood and sleep!

Drugs for Managing Cancer – Specific Guidelines

- Hydrotherapy guidelines
  - Before treatment, ensure that there are no physician/oncologist restrictions on the use of hydrotherapy! Be aware of all medications and adverse effects that could have an impact on hydrotherapy!
  - Refer to the textbook for more detail (pages 206-207). If unsure about treatment, contact the client's physician/oncologist!
- Exercise recommendation
  - Develop a progressive exercise regimen based on your client's lifestyle, current activity levels, energy level and OTHER MEDICAL CONDITIONS (ie. cardiovascular disease, respiratory disorders, etc.)! Reinforce that adequate hydration is essential during exercise!

Chapter 12: Drugs for Managing HIV/AIDS

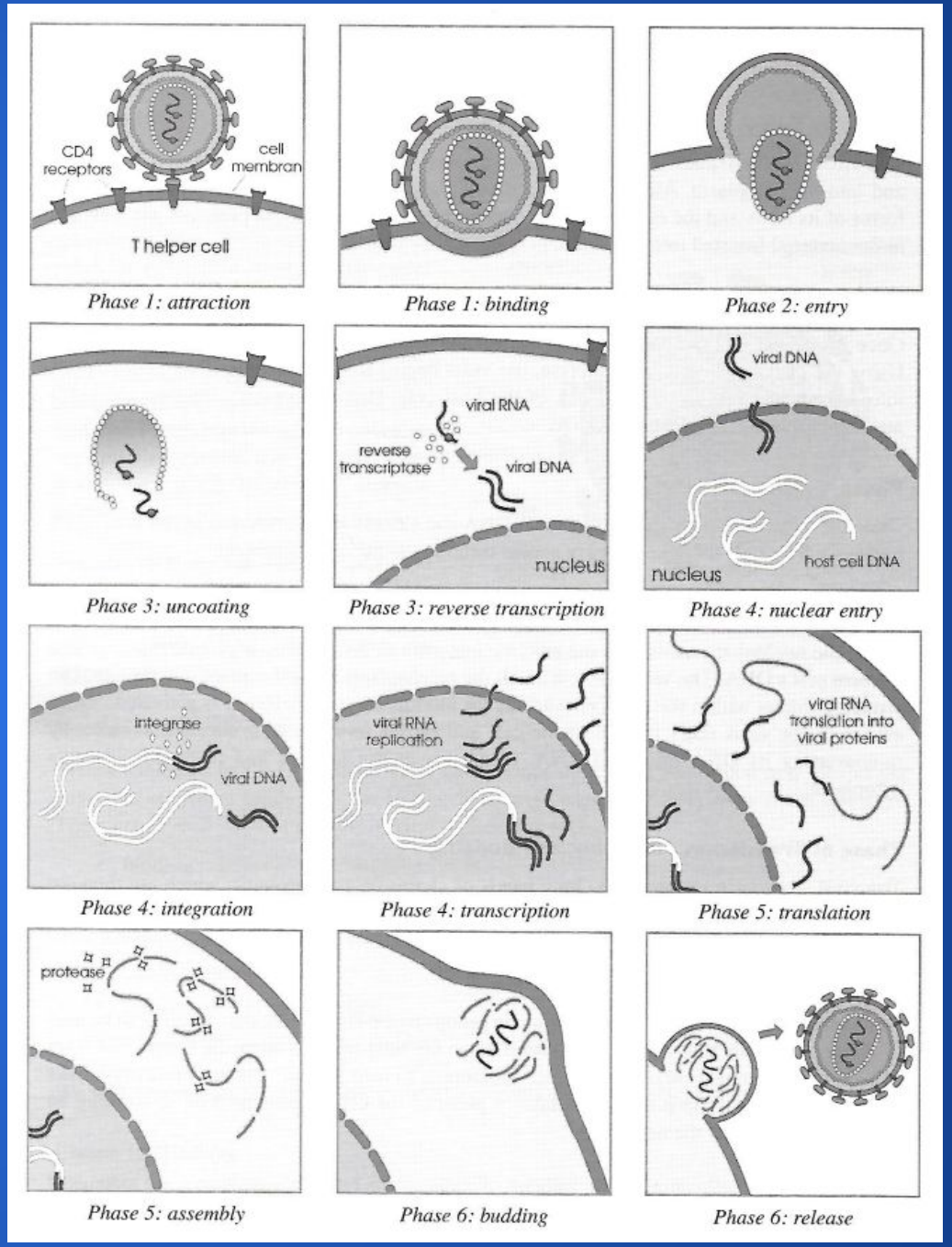


Drugs for Managing HIV/AIDS – Introduction

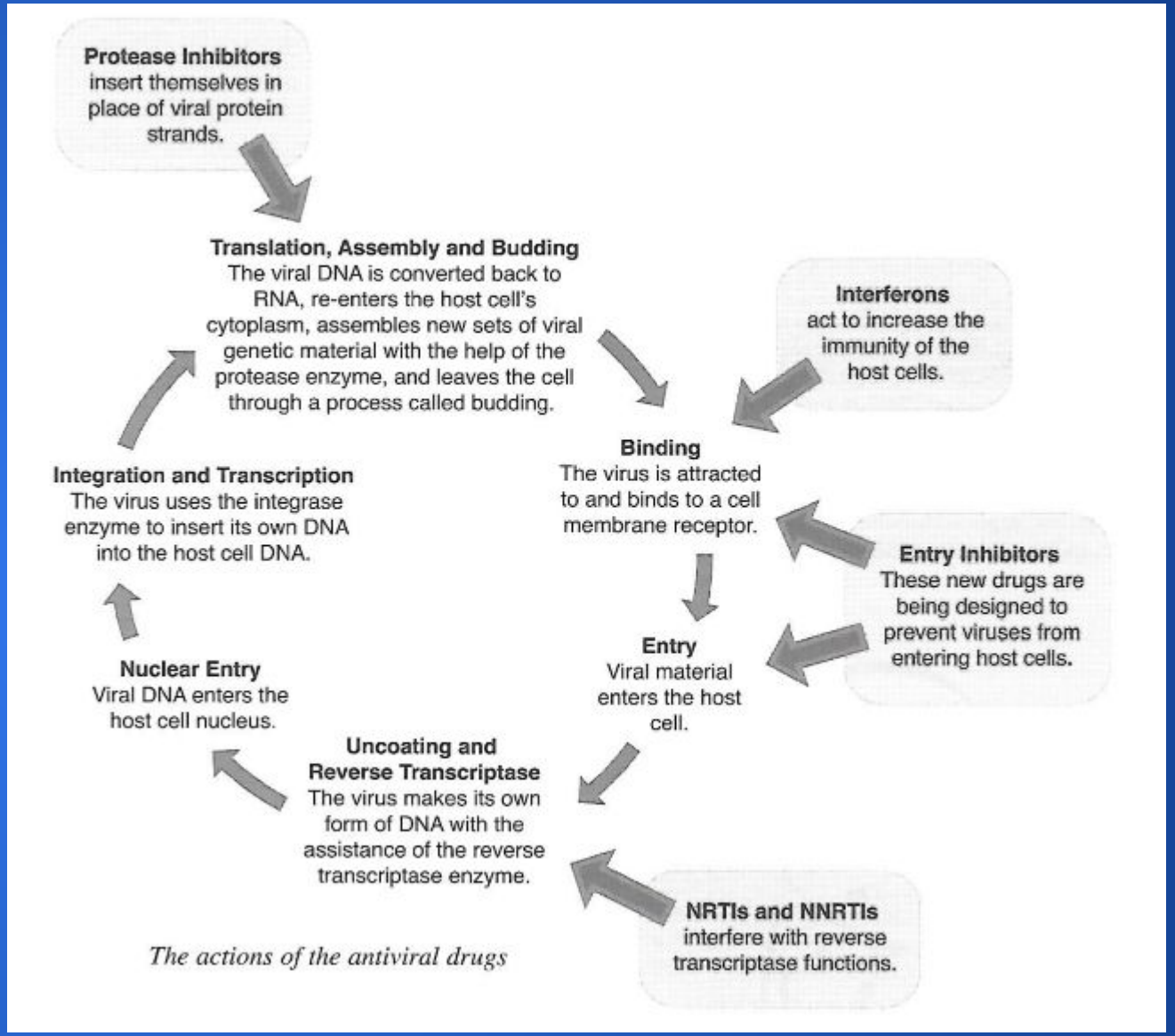
Drugs for Managing HIV/AIDS – Introduction

- Human Immunodeficiency Virus (HIV)
  - HIV infection/AIDS is a chronic infection caused by the HIV retrovirus that targets CD4+ lymphocytes (WBC) of the immune system leading to a reduced ability to fight infections
  - Transmitted via contact with infected bodily fluids (through sharing needles, sexual intercourse, mother to baby)
  - Progression from HIV infection to AIDS takes years
- Acquired immunodeficiency Syndrome
  - CD4+ lymphocyte counts are drastically decreased; patients are severely immunocompromised!
  - AIDS patients die as a result of opportunistic infections rather than the HIV retrovirus
- HIV/AIDS is always treated with distinct drug protocols (combination therapy)!

Drugs for Managing HIV/AIDS – Pathogenesis



Drugs for Managing HIV/AIDS – Antiviral Medications – Mechanism of Action Overview



The actions of the antiviral drugs

Drugs for Managing HIV/AIDS – Antiviral Medications

- **Antiretroviral medications employed in the treatment of HIV/AIDS:**

- Nucleoside reverse transcriptase inhibitors (NRTIs): tenofovir (Viread), abacavir (Ziagen), emtricitabine (Emtriva), lamivudine (Epivir)

- Non-Nucleoside reverse transcriptase inhibitors (NNRTIs): efavirenz (Sustiva), etravirine (Intelence), nevirapine (Viramune)

- Protease Inhibitors: ritonavir (Norvir), darunavir (Prezista), lopinavir

Drugs for Managing HIV/AIDS – Antiviral Medications

- **Antiretroviral medications employed in the treatment of HIV/AIDS:**
- Fusion inhibitors: enfuvirtide (Fuzeon)
- Integrase inhibitors: raltegravir (Isentress)
- Combination products: Atripla, Truvada, Kivexa

Drugs for Managing HIV/AIDS – Antiviral Medications – Side Effects

- Clients will be monitored closely by their PHYSICIAN/SPECIALIST and have routine medical appointments/bloodwork to assess for adverse effects!
- When dealing with clients taking HIV/AIDS medications, look up the side effect profile for EACH DRUG!! If you have questions or concerns regarding adverse effects of medications or effects of massage therapy, contact the client's physician/specialist!
- Refer to other drug resources such as Lexi-Comp and the CPS!!

SIDE EFFECTS – Drugs for Managing HIV/AIDS

This table lists the common side effects of the groups of medications discussed in this chapter.

Side Effects	PI	NRTI	NNRTI
Abdominal Pain	X		X
Anemia	XX	XX	XX
Anorexia	X		X
Anxiety	X		X
Arthritis	X	X	
Ataxia	X		
Back Pain	X		
Blood Disorders	XXX	XXX	XXX
Blurred Vision	X	X	
Bacterial, Viral, Fungal Infections	XX		
Breast Enlargement	X		
Chest Pain	XX		
Chills	X	X	X
CNS Depression		XX	XXX
Confusion	X	X	
Convulsions	XXX	XXX	
Cough	X	X	
Cramps	X		
Decreased Concentration			XX
Depression	X		XX
Diarrhea	XX	X	XXX
Dizziness	X	X	XX
Dreams – Intense, Unusual	X		XX
Dry Mouth	X	X	
Dyspepsia		X	
Edema	X		
Euphoria	X		
Ear Pain	X	X	
Face, Tooth Pain	X		
Fat Redistribution	XX		
Fatigue, Drowsiness	X	X	XX
Fever	XX	X	X
GI Distress, Constipation	XX	X	X
Hair Loss	X	X	
Hyperesthesia	XX		
Hyperglycemia	XX		
Hyper/Hyporeflexia	X		
Headaches		XX	XXX
Hypertension	X	XX	
Hypotension	X		

Side Effects	PI	NRTI	NNRTI
Increased Bleeding	X	XXX	
Increased Cholesterol, Triglycerides	XXX	XX	XX
Insomnia	X	X	XXX
Intense And Unusual Dreams	X		XX
Kidney Stones	X		
Lactic Acidosis		XXX	
Leukopenia	XX		XX
Libido Disorders	X		
Liver Disorders	XXX	XXX	XXX
Menstrual Irregularities	X		
Microhemorrhages	XX		
Mood Changes			X
Mouth Sores		XX	
Muscle Atrophy	X	XX	
Myalgia	X	X	X
Nausea	XX	XX	XX
Nervousness	X	X	
Neutropenia	XXX	XXX	XXX
Nosebleeds		X	
Palpitations	XX	XX	
Pancreatitis	XX	XXX	XXX
Peripheral Neuropathy	XXX	XXX	XXX
Photosensitivity	X		
Pneumonia	XX	XX	
Prickling Skin Sensation	XX		
Psychotic Disorder	X		
Respiratory Disorder	XX	XX	
Rhinitis	X		
Seizures	XXX	XXX	
Skin Rash	XX	XX	XX
Skin Ulcers And Other Changes	XX		
Splenomegaly	XX		
Sweating	X	X	
Swollen Belly	XX		
Taste Changes	X	X	XX
Thrombocytopenia	XX		XX
Vasodilation		XX	
Vomiting	X		X
Weakness	X	XX	X
Weight Increase/Loss	XX		

NA: Nucleoside Analogues, NNRTI: Non-Nucleoside Reverse Transcriptase Inhibitors, PI: Protease Inhibitors

Drugs for Managing HIV/AIDS – Unique Side Effects of Select HIV/AIDS Drugs

Drugs for Managing HIV/AIDS – Quick Guide to Case History Questions

- Questions
  - Medical conditions (including HIV/AIDS)? All medications (prescription, over-the-counter products, alternative therapy)? Is HIV infection/AIDS stable? History of adverse effects or drug toxicity?
  - Nutritional status? Is the client taking nutritional supplements? Any issues with lack of appetite, nausea or vomiting?
  - Presence of skin rashes/irritations? Areas of abnormal sensation?
  - Has the client tried massage therapy before? What are the treatment goals?
- Observations
  - Watch for client posture, gait, presence of edema and breathing patterns. Evaluate the skin for rashes/irritation and infections, tissue integrity, fragility and bruising.

Drugs for Managing HIV/AIDS – Quick Guide to Working with HIV/AIDS Patients

- Be aware of HIV/AIDS prevention guidelines (ie. Health Canada) and always ensure excellent hygiene practices!
- If you are feeling sick, for your client's safety, reschedule the appointment for a later date (AIDS patients are immunocompromised)!
- "Start low and go slow." Constantly monitor clients and modify treatment based on client feedback, tissue fragility and areas of altered sensation!
- Monitor your client's blood pressure before and after treatment! Ensure your client is comfortable during massage therapy (ie. use pillows, towels, blankets, etc.)!
- Choice of techniques
    - Develop a treatment plan that focuses on relaxation for the client! Appropriate techniques include modified effleurage/petrissage, passive ROM, gentle joint play and slow rhythmic techniques.
    - In clients with tissue fragility and/or altered sensation, AVOID deep/aggressive techniques!

Drugs for Managing HIV/AIDS – General Massage Guidelines

- HIV/AIDS patients will be taking numerous different medications, which increases the risk of adverse effects and drug interactions! Monitor your client closely for development of adverse effects or symptoms of toxicity!
- Massage therapy is generally contraindicated in the follow situations: pancreatitis, blood dyscrasias, skin rashes/irritations/infections and liver dysfunction!
- Your client's health status may change from day to day. Communicate with your client to ensure they are feeling well enough for treatment. If not, encourage them to reschedule!
- Watch for adverse effects, including fatigue, dizziness, and orthostatic hypotension, that can be amplified by massage treatment! Instruct clients sit up slowly and wait for a few minutes before getting up from the massage table!

Drugs for Managing HIV/AIDS – Specific Guidelines

- SHORTER/LESS INTENSE treatment may be necessary in clients experiencing dizziness, headache, fatigue or sleep disturbances secondary to antiretroviral medications!
  - For additional massage recommendations on adverse effects of HIV/AIDS medications, refer to the textbook (pages 221-223)

Drugs for Managing HIV/AIDS – Specific Guidelines

- Hydrotherapy guidelines
  - Before treatment, ensure that there are no physician restrictions on the use of hydrotherapy! Be aware of all medications and adverse effects that could have an impact on hydrotherapy! Ask your client about normal shower/bath temperatures!
    - Refer to the textbook for examples (page 223)
  - "Start low and go slow." Monitor your client closely starting with mild, better tolerated hydrotherapy applications!
- Exercise recommendation
  - Develop a progressive exercise regimen based on your client's lifestyle, energy levels and current activity levels! Watch for adverse effects that can impact exercise such as increased sweating, photosensitivity and fatigue/weakness!
  - When in doubt of your exercise recommendation, contact the medical team!

References

- [1]Persad, Randal S. *Massage Therapy & Medications: General Treatment Principles*. Toronto: Thistle Printing Limited, 2011. Print.
- [2]Lexi-Comp Mobile App for iPhone. Version: 2.3.1 (2015)
- [3]RxVigilance Mobile App for iPhone. Version: 1.2.55 (2015)

Thank you and good luck!!