

Loving Kindness Meditation

- May I / you be happy.
 - May I / you be peaceful.
 - May I / you have ease of well-being.
 - May I / you be free from suffering.
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- <http://theheartofawakening.wordpress.com/may-is-for-metta/>

Pharmacology

from pharmakon “charm, spell, drug, poison, sacrament, remedy, talisman, cosmetic, perfume or intoxicant, enchantment” and logia "dealing with the topic of"

Pharmacology, bugs and drugs

- Some say average person in the U.S. is on 10 medications (over and under counter).
- This can be a godsend or a misfortune.
- In any case, we generally are seeing clients on some form or forms of medication.
- This is important info to include in your intake.

Main reasons to be familiar with pharmacology

- What are red flags?
- What to avoid systemically or locally?
- What modalities to avoid?
- What to monitor (“non-working” signs)?
- When to require prior consent from M.D. or other qualified health professional?
- Further insight into individual pathologies and other possible issues of concern.

Medicine and Massage

- Knowing client's medications can reveal conditions they have not reported
- Just as their conditions present possible incompatibilities with massage, so their drugs may undermine the goals of your massage

Medicine and Massage

- Massage may exacerbate side-effects or interfere with or enhance therapeutic effects
- Drugs may work against intended effects of massage
- Therefore, we want as much information as we can have about what clients are taking, and how it may interact with massage

You will not remember it all!

- Read Appendix A in Massage Therapists Guide to Pathology
- Consider buying Pharmacology for Massage Therapists by Jean Wible.
- www.pdrhealth.com/druginfo

Methods of Administration

- Intereal - Oral or using mucous membranes
- Parenteral -

Intravenous – into vein

Intramuscular – into muscle

Subcutaneous – under skin – to be safe, no massage on local area of injection (or topical application) for 24 hours after.

Subdermal – under epidermis

Intrathecal – into cerebrospinal fluid

Methods of Administration - cont

- Transdermal
- Inhalation
- Topical

Pharmacokinetics - movement

- Absorption – how taken into body
- Distribution – how moved to various tissues
- Metabolism – how changed into excretable form
- Excretion – how removed from the body
- Onset – how long it takes to start working
- Peak – how long until it is at peak concentration
- Duration – how long it produces effect

Pharmacodynamics – study of drug mechanisms that produce changes in the body

Way Drugs Work:

- modify cell function or rate of function
- stimulate or block drug receptors

Potency:

- relative amount required to produce a desired response
- margin of safety (effective vs overdose)

Pharmacotherapeutics – the use of
drugs to treat disease

Pharmacotherapeutics

- Types of drug therapy
 - Acute: critically ill patient
 - Empiric: based on practical experience rather than pure science
 - Maintenance: for chronic conditions that do not resolve
 - Supplement: replenish or substitute for missing substances
 - Supportive: does not treat the cause, but maintains other body systems until condition resolves
 - Palliative: used in end-stage or terminal conditions to make the patient as comfortable as possible

Pharmacotherapeutics-continued

- Response to drug affected by – overall health, coinciding medical conditions, lifestyle characteristics, drug tolerance
- Drug dependence – produces withdrawal symptoms when stopped – results in drug-seeking behavior

Drug Interactions - Incompatibilities

- Additive effects – two drugs with similar effects are administered – may be a good strategy
- Potentiation – synergistic interaction between two drugs that produce the same effects - enhances effect
- Antagonistic effects – combined responses of two drugs less than the response produced by either
- Absorption problems – combination of two drugs inhibits one or both from performing effectively
- Food interactions – food can interfere with absorption or action of drug

Adverse Drug Reactions

- Dose-Related Effects

Secondary effects – e.g. morphine for pain can cause constipation

Hypersusceptibility – excessive response or secondary effects from “normal” dose

Overdose – exaggerated response due to excessive dose

Iatrogenic effects – mimic pathological disorders

(e.g. aspirin, corticosteroids can produce GI irritation or bleeding)

Adverse Drug Reactions – cont.

- Sensitivity reactions

Drug allergy – immune system identifies drug as dangerous foreign substance – reaction can be mild or dangerous

Idiosyncratic response – not due to pharmacologic properties of the drug, or an allergic response – may be due to genetics of patient

Common Side Effects

Common:

- Drowsiness, fatigue, dizziness
- Restlessness, nervousness, insomnia
- Abdominal distress
- Constipation or diarrhea
- Peripheral neuropathies
- Orthostatic hypotension
- Muscle cramps, pain, joint pain
- Allergic responses

Short List of Medication Classes

- Antianxiety
- Antidepressant
- Anti-inflammatory/analgesic
- Autonomic Nervous System
- Cardiovascular
- Cancer
- Clotting management

Short List of Medication Classes - continued

- Diabetic
- Muscle relaxant
- Thyroid supplement

Antianxiety Drugs

Antianxiety Drugs

- Benzodiazepines
 - Examples: valium, xanax, halcion
 - Mechanism: mimic inhibitory action of neurotransmitter gamma aminobutyric acid, suppressing the emotional component
 - Massage: may be prone to slide into parasympathetic state, experiencing dizziness and fatigue at end of massage. Include stimulating techniques

Antianxiety Drugs - continued

- Buspirone HCL
 - Example: BuSpar
 - Mechanism: appears to bind up serotonin and dopamine receptors in the brain
 - Massage: may be prone to slide into parasympathetic state, experiencing dizziness and fatigue at end of massage. Include stimulating techniques

Antidepressant Drugs

Antidepressant Drugs

- Tricyclics
 - Examples: Imipramine/tofranil, amitriptyline/elavil, nortriptyline/pamelor
 - Mechanism: block reuptake of norepinephrine and serotonin at synapses
 - Massage: as these drugs may have drowsiness or dizziness as a side effect, some stimulating strokes near the end may be useful

Antidepressant Drugs-continued

- Monoamine Oxidase Inhibitors
 - Examples: nardil, parnate, marplan
 - Mechanism: inhibit monoamine oxidase (an enzyme that breaks down neurotransmitters)
 - Massage: as these drugs may have drowsiness or dizziness as a side effect, some stimulating strokes near the end may be useful

Antidepressant Drugs-continued

- Selective serotonin reuptake inhibitors/
serotonin norepinephrine reuptake inhibitors
 - Examples: prozac, zoloft, paxil, lexapro
 - Mechanism: keep serotonin and norepinephrine present in CNS synapses for longer period of time
 - Massage: SSRIs and SNRIs have fewer side effects than other antidepressants, but therapist should still be alert and compensate for signs of dizziness or drowsiness

Anti-inflammatory and Analgesic Drugs

Anti-inflammatory and Analgesic Drugs

- Salicylates
 - Examples: aspirin, empirin, doan's pills
 - Mechanism: inhibit prostaglandin synthesis, reducing pain sensitivity and inflammatory response; reduce fever by acting on hypothalamus and promoting peripheral vasodilation
 - Massage: treat conservatively due to reduced pain perception, watch for dizziness and chilling

Anti-inflammatory and Analgesic Drugs-continued

- Acetaminophen
 - Examples: tylenol, anacin
 - Mechanism: not thoroughly understood – act on the heat-regulating center of hypothalamus to reduce fever; reduce pain sensation, but do not influence inflammation
 - Massage: avoid overtreatment, as with all pain medications

Anti-inflammatory and Analgesic Drugs-continued

- Nonsteroidal Anti-inflammatory Drugs
 - Examples: celebrex, nuprin, aleve, advil
 - Mechanism: inhibit prostaglandin synthesis at sites of tissue damage to reduce inflammation and the pain associated with it
 - Massage: avoid overtreatment

Anti-inflammatory and Analgesic Drugs-continued

- Steroidal Anti-inflammatory Drugs
 - Examples: cortisone, beconase, prednisone
 - Mechanism: not well understood – may suppress production of prostaglandins, histamine, and other inflammatory substances
 - Massage: long term use associated with weakened connective tissues, muscle wasting, reduced bone density – avoid deep tissue or myofascial massage

Anti-inflammatory and Analgesic Drugs-continued

- Narcotics and Mixed Narcotics
 - Examples: codeine, demerol, oxycontin, darvon, vicodin, fentanyl, dilaudid, morphine
 - Mechanism: Bind to opiate receptors in the brain to mimic action of pain-killing endorphins - potentially addictive
 - Massage: caution due to reduced sensation; may be prone to mood swings. No deep tissue, stimulate near end, avoid transdermal patches

Autonomic Nervous System Drugs

Autonomic Nervous System Drugs

- Cholinergics
 - Examples: urecholine, carbastat, aricept
 - Mechanism: mimic action of parasympathetic system
 - Massage: include stimulating techniques – do not overtreat

Autonomic Nervous System Drugs- continued

- Anticholinergic drugs
 - Examples: atropine, scopolamine, librax, artane
 - Mechanism: variable – may stimulate or depress parasympathetic nervous system receptors
 - Massage: depending on drug, target organ and side effects, as well as report of client, determine if parasympathetic responses are stimulated or blocked, then adjust massage accordingly

Autonomic Nervous System Drugs- continued

- Adrenergic drugs
 - Examples: dopamine, epinephrine, albuterol, neo-synephrine
 - Mechanism: stimulate the sympathetic nervous system
 - Massage: longer, slower massages, minimal use of stimulating techniques

Autonomic Nervous System Drugs- continued

- Adrenergic blockers
 - Examples: cardura, minipress, flomax
 - Mechanism: block action of sympathetic NS at various receptor sites
 - Massage: client may be susceptible to going into a deep parasympathetic state – be sure client is awake and not experiencing dizziness

Cardiovascular Drugs

Cardiovascular Drugs

- Beta blockers
 - Examples: inderal, levatrol, betagan
 - Mechanism: affect beta receptors at heart, bronchi, blood vessels and uterus – lower blood pressure and cardiac output.
 - Massage: avoid submersion in hot water or long exposure to sauna, steam, etc. Caution client to be cautious when getting up to avoid dizziness

Cardiovascular Drugs

- Calcium channel blockers
 - Examples: norvasc, ardene, isoptin
 - Mechanism: block movement of calcium ions in cardiac and smooth muscle, resulting in vasodilation and more efficient heart function – used for hypertension and long-term angina
 - Massage: watch for dizziness and hypotension

Cardiovascular Drugs

- Angiotensin converting enzyme inhibitors
 - Examples: lotensin, vasotec, accupril
 - Mechanism: limit action of enzyme employed in renin-angiotensin system, promoting excretion of sodium and water, to control hypertension and heart failure
 - Massage: use gently invigorating strokes near end of treatment to avoid dizziness, lethargy and hypotension

Cardiovascular Drugs

- Digitalis
 - Examples: digitek, digoxin, lanoxin
 - Mechanism: increases force of heartbeat by boosting calcium in cardiac muscle cells; slows heart rate through action in CNS. Used to treat arrhythmia and heart failure
 - Massage: minimize circulatory impact of massage

Cardiovascular Drugs

- Antilipemic drugs
 - Examples: locholest, lipitor, zocor
 - Mechanism: work by sequestering bile or inhibiting cholesterol synthesis, thus lowering LDL levels
 - Massage: watch for side effects such as abdominal pain (possible bowel impaction), muscle soreness, cramping and weakness (notify physician before addressing those problems with massage)

Cardiovascular Drugs

- Diuretics
 - Examples: thalidone, lasix, lozol
 - Mechanism: some prevent sodium resorption in kidney; others prevent resorption of water and salt
 - Massage: rigorously applied massage may put a load on kidneys; diuretics may cause loss of potassium that can cause muscle cramps – physician should be notified before addressing with massage

Cardiovascular Drugs

- Antiangina medication
 - Examples: nitroglycerin, nitrodisc, nitrostat
 - Mechanism: reduce myocardial oxygen demand, increase supply of oxygen to the heart, or both; vasodilation of veins, reducing load on heart
 - Massage: avoid transdermal patch; be aware of potential for hypotension and dizziness

Cancer Drugs

Cancer Drugs

- A large group of drugs that act in a wide variety of ways on the body to target cancer cells
- Massage should be applied very conservatively, with circulatory effect minimized
- Timing should be related to excretion rates of the drug and discussed with physician in detail

Clotting Management Drugs

Clotting Management Drugs

- Anticoagulants
 - Examples: heparin, coumadin
 - Mechanism: alter formation of clotting factors in the liver to prevent formation of new clots
 - Massage: be aware of increased tendency for bruising and formation of clots. If clots are present massage is contraindicated.

Clotting Management Drugs

- Antiplatelet drugs
 - Examples aspirin, empirin, plavix
 - Mechanism: prevent platelets from clumping at site where clot might otherwise form
 - Massage: be aware of increased tendency for bruising

Diabetes Management Drugs

Diabetes Management Drugs

- Insulin
 - Examples: humulin, humalog, lantus
 - Mechanism: decreases blood glucose by helping to deliver glucose to cells
 - Massage: avoid local injection areas for up to 24 hours; massage best received in middle of insulin cycle; new client might check blood glucose before and after early sessions; have sugar available in case of hypoglycemic episode

Diabetes Management Drugs

- Oral glucose management drugs
 - Examples: glucotrol, glucophage, precose
 - Mechanism: work in a variety of ways to inhibit production of sugar in liver, improve output of insulin from pancreas, increase sensitivity of insulin receptors on target cells
 - Massage: same considerations as for insulin

Muscle Relaxant Drugs

Muscle Relaxant Drugs

- Centrally acting skeletal muscle relaxants
 - Examples: soma, paraflex, norflex, valium
 - Mechanism: CNS depressants, suppressing reflexes that would tighten muscles in response to stretching or damage
 - Massage: be aware of potential for exhaustion due to overly parasympathetic state induced by combination of massage and drug; avoid aggressive stretching

Muscle Relaxant Drugs

- Peripherally acting skeletal muscle relaxants
 - Examples: dantrium
 - Mechanism: interferes with calcium release at sarcoplasmic reticulum of skeletal muscle cells, leading to weaker contractions
 - Massage: avoid stretching and massage conservatively

Thyroid Supplement Drugs

Thyroid Supplement Drugs

- Levothyroxine sodium
 - Examples: synthroid, levoxyl
 - Mechanism: mimic action of thyroid hormones to boost protein synthesis in cells, promote use of glycogen stores, increase heart rate, cardiac and urine output
 - Massage: new users may be experiencing nervousness, agitation and insomnia which massage may help

Thyroid Supplement Drugs

- Dessicated extract
 - Examples: armour thyroid, nature-throid
 - Mechanism: same as synthetics, but potency of dosages may be unpredictable, causing fluctuations of symptoms
 - Massage: new users may be experiencing nervousness, agitation and insomnia which massage may help

Thyroid Supplement Drugs

- Lyothyronine sodium
 - Examples: cytomel, triostat
 - Mechanism: same as synthetic and extract forms
 - Massage: same as for synthetic and extract forms

Additional classes of medicines

- Respiratory Drugs
- Gastrointestinal Drugs
- Anti-infective Drugs
- Fluid/electrolyte Balance Drugs
- Herbs, Supplements, Alternative meds