

Sexual Dysfunction

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Use of PDE-5 Inhibitors

- Sildenafil (Viagra, Revatio), tadalafil (Cialis), vardenafil (Levitra)
- Mechanism of Action: Inhibiting phosphodiesterase-5 increases levels of cGMP and ultimately causes smooth muscle relaxation and an increase in blood flow
- Nitrate interaction – avoid using together
 - Tadalafil has the longest half-life; avoid nitrate use for 48 hours
 - Vardenafil, sildenafil avoid nitrate use for 24 hours
- Drop in blood pressure, orthostasis risk
- Changes in vision color (rare)

Meds That Cause Sexual Dysfunction - Psych

- SSRI's
- TCA's
- MAOI's
- Better options
 - Bupropion
 - Mirtazapine
- Antipsychotics (typicals maybe a little worse as well as risperidone)
- Lithium

Meds That Cause Sexual Dysfunction - Cardiac Medications

- Beta-blockers
- Thiazide Diuretics
 - Alternatives for HTN – ACE/ARB/CCB
- Clonidine, methyldopa

Other Medications

- Finasteride
- Dutasteride
- Antihistamines (drugs with anticholinergic effects)

Contraception

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Contraception

- Primary goal:
 - Reduce risk of pregnancy
- Options
 - Oral contraceptives (estrogen, progestin combination)
 - Progestin only
 - Vaginal option (ring)
 - Patch
 - IM injection
 - Implant/IUDs
 - Emergency contraceptives

Selection Factors

- Adherence
- Adverse Effects
- Cost
- Lifestyle
 - Patient preference
- Previous experience

Adverse Effects – Oral Contraceptives

- Mechanism of Action: estrogen and progestin suppress the release of gonadotropins which prevents follicular development and prevent ovulation
- Higher estrogen
 - GI
 - May get used to this
 - More breast tenderness
 - May get used to/tolerant
 - DVT risk
- Less estrogen
 - Breakthrough bleeding

Adverse Effect Profile

- Weight gain
- GI (nausea)
- Mood changes
- Breast tenderness
- Variable spotting
- DVT
- CV events
 - Smoking, age (>35)

High Risk Patients – Oral Contraceptives (E/P)

- Age >35/smoking
- CVD risk factors (smoking, diabetes, hypertension, older age)
- Uncontrolled hypertension >160/100
- Clotting disorder
 - Hx of stroke/DVT
- Valve replacement/anticoagulation
- Breast cancer

Oral Contraceptives

- Alesse-28, Apri, Aviane, Genora, Levora, Loestrin, Lo-Ovral, Low-Ogestrel 28, Microgestin, Necon, Nordette, Nortrel, Ortho-Novum, Ortho-Cyclen, Seasonale, Tri-Norinyl, Trivora, Yasmin
- Combination progestin/estrogen
 - Monthly cycles: active tablets for 3 weeks followed by 1 week of placebo tablets to induce menstrual period
 - Monophasic - same amount of hormone in each active tablet
 - Triphasic - amount of hormone in active tablets varies to mimic physiologic hormone cycles
 - Continuous dosing: active tablets for extended period of time (typically 12 weeks) followed by 1 week of placebo tablets to have menstrual period every 3 months

Progestin Only Pill

- Mechanism of Action: Thickens cervical mucous and thins the endometrial lining to discourage ovum implantation
- “Minipill”
- Consistent administration key!
 - Take at same time every day
 - Risk of breakthrough bleeding or pregnancy
- Option for breastfeeding

Other Options

- Vaginal ring (Nuvaring)
 - Combination estrogen/progestin contraceptive ring inserted into vagina
 - Leave in place for 3 weeks then remove for 1 week
 - Requires refrigeration
- Topical patch (Ortho Evra, Xulane)
 - Combination estrogen/progestin contraceptive patch
 - Change patch once each week for 3 weeks then off for 1 week
 - Chances of developing blood clot may be slightly higher than with oral options
 - May be less effective in patients >90kg

Other Options

- Contraceptive IM injection (Depo Provera)
 - Progesterone only, medroxyprogesterone acetate
 - 150mg administered IM every 3 months
 - Associated with irregular bleeding/spotting
 - Associate with weight gain
 - Also available subQ at dose of 104 mg
- Subdermal implant (Nexplanon)
 - Progestin-releasing implant placed under the skin in the arm
 - Slowly releases hormone to provide contraception for up to 3 years
 - Associated with irregular bleeding

Other Options

- Intrauterine devices (IUD's)
 - Placed into uterus by a healthcare professional through the vagina and cervix
 - Not easily reversible if patient wants to become pregnant
 - Copper IUD (Paragard)
 - Can cause heavier bleeding and worse cramping during menstrual period
 - Remains effective for 10 years
 - Non-hormonal- ideal for patient with issues to hormonal contraceptives
 - Can be used as emergency contraceptive if inserted within 5 days of unprotected sex
 - Levonorgestrel IUD's
 - Typically decreases menstrual bleeding and pain, sometimes eliminating menstrual periods completely
 - Options include Mirena (lasts for 5 years) and Skyla (lasts for 3 years)

Emergency Contraception

- Most common emergency contraception is the “morning after” pill
- Levonorgestrel (progestin) prevents ovulation or fertilization, may also prevent implantation through alteration of endometrium
- Recommended to take as soon as possible after unprotected intercourse (maximum efficacy within 72 hours, moderate efficacy within 120 hours)
- Several products available including Plan B One Step, and Next Choice
- Ulipristal (Ella)
 - Taken within 5 days is ok
 - RX only
- Copper IUD insertion (see above)

Menopause and Estrogen Use

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Menopause Symptoms

- Hot flashes
- Fatigue
- Mood/depression related concerns
- Vaginal atrophy/dryness
- Night sweats
- Insomnia
- Weight gain

Loss of Estrogen Risks

- Osteoporosis
- Cardiovascular disease
- Incontinence
- Sexual problems (decreased libido, vaginal dryness etc.)

Management of Symptoms

- Hormone replacement therapy
- Very effective, but comes with risks
- If patients need to use estrogen replacement
 - Minimize length of therapy if possible
 - Minimize dose if possible
 - Various dosage forms patch, tablet, ring
- For patients with intact uterus
 - Need to utilize progestin if estrogen is going to be used to reduce the risk of uterine cancer

Benefits and Risks of Estrogen

- Osteoporosis
- Colorectal Cancer
- Improve menopausal symptoms
- Clots
- CHD
- Breast Cancer
- Endometrial Cancer

Goals of Estrogen Therapy

- Treat symptoms
- Limit length of use
- Minimum Effective Dose
- Avoid use
- Discontinue
- Use local if possible (vaginal atrophy)

Common Products

- Estrace – Estradiol (oral, vaginal cream)
- Estrin – Vaginal ring, estradiol
- Premarin – Conjugated Estrogens (oral and vaginal cream)
- Climara – Weekly estradiol patch
- Femring – Intravaginal ring
- Vagifem – Vaginal table
- Prempro – Medroxyprogesterone/estrogen
- Climara Pro – Weekly estradiol/levonorgestrel
- Depo-Estradiol - IM

Alternatives to Estrogen

- Non hormonal medications may be helpful for menopausal symptoms like hot flashes, mood changes
- SSRI's
 - Paroxetine (FDA-approved), citalopram
- SNRI's
 - Venlafaxine
- Anticonvulsants
 - Gabapentin
- Oxybutynin

Lactation

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Use of Medications – Breastfeeding Mom

- Challenges

- Chronic disease
 - HTN, Depression, Anxiety
- Acute problems
 - Infections
- Pain management

- Common sense principle

- If baby can take it, breastfeeding mom should be able to take it

Meds that Impact Breast Milk Production

- Pseudoephedrine
 - Suspected suppression of prolactin
- Dopamine agonists
 - Remember that antipsychotics can cause elevated prolactin levels (and cause lactation)
- Estrogen
 - Birth control
 - May need to use progestin only BC

Mastitis

- Infection/inflammation of breast tissue
- If infected
 - Beta-lactam
 - Dicloxacillin
 - Cephalexin
 - **if baby can take it, mom should be able to as well

Baby Deficiencies

- Iron
 - Premature babies
- Vitamin D
- B12

Common Drugs Considered "Generally Safe"

- Breastfeeding
 - Analgesics – APAP, ibuprofen
 - Antibiotics – PCN, Ceph, Macrolide
 - Big molecule drugs – heparin type products/insulin

What to do?

- If minimal data
 - Play it safe
 - Minimize dose
 - Minimize duration
 - Choose alternative agent
 - Factor in mother's health
 - Anxiety/depression
 - Provide information to patient
 - Avoid breastfeeding

Pregnancy and Medication Use

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Preeclampsia

- Increase in blood pressure late in pregnancy
- Hypertension drugs of choice
 - Nifedipine (CCB)
 - Methyldopa
 - Rare, notable precautions – edema, thrombocytopenia, liver issues
 - Labetalol
 - IV and oral option
 - Hydralazine
 - IV and oral option
- 100% Avoid
 - ACE, ARB, Aldosterone antagonists

Constipation

- Common complaint in pregnancy
- Non drug interventions first line
 - Fluids/fiber
 - Exercise
- Stool softeners generally considered safe
- Metamucil type products

Nausea/Vomiting (Morning Sickness)

- If serious enough, can lead to dehydration, nutritional concerns
- Non-drug interventions for mild to moderate
 - Small, frequent meals
 - Bland foods
 - Avoiding trigger foods/smells
- Pyridoxine (vitamin B6)
- Doxylamine
 - First generation antihistamine
- Other options – reserved for refractory cases
 - Chlorpromazine
 - Prochlorperazine
 - Diphenhydramine
 - Metoclopramide
 - Ondansetron

UTI's

- Rare case where asymptomatic bacteriuria treatment is indicated
- Drugs of choice
 - Cephalosporins
 - Penicillins
- Nitrofurantoin
 - Contraindicated at full term due to risk of hemolytic anemia in infant
 - 38-42 weeks
- Fosfomicin
- Sulfa – decent safety record early (1st and 2nd trimesters)
- Quinolones, Trimethoprim, Tetracyclines generally avoid

Heartburn

- Non-drug interventions
 - Small, frequent meals
 - Elevated head of bed if nighttime problems
- Antacids (calcium, magnesium based)
- Sucralfate
 - Minimal systemic absorption
- H2 blockers (i.e. ranitidine)
 - Generally considered safe, use for shortest duration possible
- PPI's – less data available compared to H2's; reserved for severe/refractory cases
- Metoclopramide – option if nausea and vomiting as well

Pain Management

- Non-drug
 - Heat, ice
- Acetaminophen
 - Drug of choice for pain/headache
- Educate to avoid NSAIDs
 - Risks>benefit
 - Ibuprofen, aspirin, naproxen, etc.

Depression/Anxiety

- SSRI's drug of choice if have to start one during pregnancy
 - Sertraline, fluoxetine generally have the most data
 - Avoid paroxetine
- Depression and/or anxiety can be detrimental to health of the mother and health of the baby too
- Weigh risk of treatment compared to benefit of treatment

Gestational Diabetes

- Risk of hypertension, high birth weight baby, early delivery
- First line
 - Diet management
- Insulin is typically first line if medication management is necessary
 - Most experience
 - NPH
 - Regular
- If patient refuses injections
 - May consider sulfonylurea/metformin

Urinary Incontinence

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Definitions

- Incontinence
 - Go when you don't want to (can't control)
 - Weakness or loss of voluntary control of urinary sphincter
- Frequency
 - Feeling of having to go all the time
- Retention
 - “retaining” – incomplete emptying of the bladder
 - Most common cause (males) - BPH

Types of urinary incontinence

- Stress
 - Physical exertion (i.e. sneeze, cough)
- Urge
 - Over Active Bladder (OAB)
 - Feel the need to go, but maybe don't make it in time
 - Immobility
 - MS, Parkinson's, Diabetes
- Overflow
 - Blockage (BPH)
 - May dribble urine
- Functional
 - Patient who has dementia

Anticholinergics

- Anticholinergics; AKA antimuscarinic
 - Tolterodine (Detrol), oxybutynin (Ditropan, Oxytrol - patch), solifenacin (Vesicare), darafenacin (Enablex), trospium (Sanctura), fesoterodine (Toviaz)
 - Antagonist at muscarinic receptors which prevents the action of acetylcholine; resulting in relaxation of bladder smooth muscle which can reduce urge, spasms, and frequency
 - Make sure these drugs are actually effective: if not, try another agent or discontinue to avoid possible adverse effects
 - Most efficacy in urge/over-active bladder type incontinence

Anticholinergics

- Oxybutynin comes in a patch formulation (and oral)
 - Least selective, higher incidence on systemic anticholinergic effects
 - Cognitive impairment, constipation, urinary retention, dry eyes, dry mouth, increase fall risk
- Other, more bladder selective agents may be more expensive
- Trospium is least likely to cross blood brain barrier (potentially best in patient with preexisting dementia or other cognitive impairment)
- AE's
 - Confusion
 - Dry eyes, mouth
 - Constipation, slows GI motility
 - Retention

Beta-agonists

- Mirabegron (Myrbetriq), vibegron (Gemtesa)
- Mechanism of Action: Binds beta-3 receptors in the bladder which relaxes detrusor smooth muscle
- Does have selectivity for bladder receptors, but systemic side effects still possible (beta-1 – increase blood pressure and pulse) especially at higher dose
- Possible 2D6 interactions with mirabegron (vibegron avoids 2D6)

Stress Incontinence Treatment

- Kegel Exercises
- Alpha agonists
 - Midodrine
 - Pseudoephedrine
- Duloxetine – off label indication for stress incontinence
- Anticholinergics tried, but may not be that effective
 - Could be mixed incontinence if beneficial

Urge Incontinence

- Treatment
 - Anticholinergics
 - Beta agonist (mirabegron) – selective for Beta-3
- Topical estrogen – best utilized in females who are peri- or post-menopausal and have vaginal dryness with stress or urge incontinence
- Botox
 - Can help with spasms
 - Significant expense associated

Overflow

- Medication Treatment
 - Alpha-blockers
 - 5 alpha reductase inhibitors
 - See BPH

BPH

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BPH Characteristics

- Enlargement of the prostate
- Impairs urination
 - Frequency
 - Incomplete bladder emptying
 - Low flow
 - Incontinence

BPH Treatment

- Alpha Blockers
- 5-Alpha Reductase Inhibitors
- Surgery (TURP)

Alpha-Blockers

- Non-selective alpha-blockers: Doxazosin (Cardura), Prazosin (Minipress), Terazosin (Hytrin)
- Selective alpha-blockers: tamsulosin (Flomax), silodosin (Rapaflo), alfuzosin (Uroxatral)
- Mechanism of Action: Mechanism of Action: Blocks alpha receptors causing smooth muscle relaxation, vasodilation and opening of the ureter
- Non-selective alpha blockers can be used for hypertension and BPH (terazosin and doxazosin)
- Can work quickly to help relieve symptoms unlike the 5 alpha reductase inhibitors
- Orthostasis is major risk for these medications
- Alpha blockers can increase risk of floppy iris syndrome for those undergoing eye operations

5-Alpha Reductase Inhibitors

- Finasteride (Proscar), dutasteride (Avodart)
- Mechanism of Action: Inhibition of 5-alpha reductase leads to a reduction in the conversion of testosterone to dihydrotestosterone (DHT); DHT is primarily responsible for the enlargement of the prostate
- Sexual impairment is primary adverse effect (remember that the mechanism of action reduces testosterone production)
- Caution caregivers (younger females) about handling in pregnancy (historically category X)
- Takes a long time to begin working (shrinks prostate) - weeks to months
- Prostate size generally determines extent of benefit (i.e. larger prostate, more benefit)

Drugs That Exacerbate Frequency

- Diuretics
- Caffeine
- ETOH

Drugs That Exacerbate Retention

- Anticholinergics
- Alpha agonists (Midodrine)
- Pseudoephedrine