

Lecture 1: Erectile Dysfunction (The only lecture in mid-Exam)

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1-Drugs that cause Erectile Dysfunction

Drugs	How are they causing erectile dysfunction
Anti-psychotic drugs	DA antagonist + hyperprolactinemia
Anti-epileptic drugs	(phenytoin) → have GABA effect → antagonize Exc. Amino acid. → ↑ sedation → ↓ arousal.
Methyldopa, Reserpine	↓ arousal
Clonidine	↓ arousal centrally / Vasoconstriction peripherally
B ₂ blockers	-ve vasodilating B ₂ + potentiate α ₁ effect
Thiazide diuretics	↓ spinal reflex controlling erection + ↓ arousal
Finasteride	Alpha-reductase inhibitor (prevent production of active testosterone) → <u>irreversible erectile dysfunction</u>
Cyproterone acetate	synthetic steroidal antiandrogen
Cimetidine (high doses) / Ketoconazole / Spironolactone	Hyperprolactinemia + gynecomastia
Estrogen-containing medications	-

2-Habituating agents that cause Erectile Dysfunction

Cause	How are they causing erectile dysfunction
Cigarette smoking	vasoconstriction + penile venous leakage
Alcohol (Small Amounts)	↑ desire + ↓ anxiety + vasodilatation
Alcohol (Big Amounts)	↑ sedation + ↓ desire
Chronic Alcoholism	Hypogonadism + polyneuropathy

3-Treatment of Priapism

-Priapism is A medical emergency.
-Treatment by Intracavernous injection of Phenylephrine → α ₁ agonist → detumescence (Flaccid state)

4-Drugs that treat Erectile Dysfunction

Subclass	Drugs	Mechanism	Indication	ADRs	Precautions	Notes
PDE5 Inhibitors	Sildenafil, Vardenafil, Tadalafil, Avanafil	Inhibit PDE ₅ → prevent breakdown of cGMP → certain vasodilatation → erection	1-Erectile dysfunction: 2-Pulmonary hypertension. 3-BPH & premature ejaculation.	1-Headache (All Drugs) 2-Flushing (All Drugs) 3-Dyspepsia (All Drugs) 4-Abnormal vision (with Sildenafil only) 5-Myalgia & Back pain & Sperm functions (with Tadalafil only) 6-Q-T prolongation (with Vardenafil only)	-All metabolized by hepatic CYT3A4: Tadalafil > the rest thus: ↑ADRs with enzyme inhibitors; erythro & clarithromycin, ketoconazole, cimetidine, tacrolimus, fluvoxamine, amiodarone...etc. ↓ efficacy with enzyme inducers; rifampicin, carbamazepine, phenytoin. -With a blockers [except tamsulosin] → orthostatic hypotension. -With hepato/renal insufficiency -With bleeding tendencies [leukemia's, hemophilia, Vit K deficiency, antiphospholipid syndrome,...etc] -With quinidine, procainamide, amiodarone (class I & III antiarrhythmics) (Vardenafil) - contraindicated in Retinitis pigmentosa.	-All types have similar efficacy -1 st line therapy. -Avanafil has the advantage of been given 30 min before intercourse. -Tadalafil must be given every 72 hrs if used with enzyme inhibitors
Testosterone	Testosterone	-	1-Given to those with hypogonadism or hyperprolactinemia 2-Given for promotion of desire.	-	-	-
A dopamine agonist on D2 receptors	Apomorphine	Activates arousal centrally; Erectogenic + Little promotion of desire.	-Erectile Dysfunction: -Given in mild-moderate cases. -psychogenic. -when PDE5 is contraindicated.	nausea, headache, and dizziness <u>but safe with nitrate</u>	-	-Given sublingual / Acts quickly. -Weaker than PDE ₅
α1 blocker	Oral Phentolamine		-	-	-	debatable efficacy. -Can give by: intracavernosal Injection.
α2 agonist	Yohimbine	Central and peripheral α ₂ agonist	Erectile Dysfunction	-	-	Aphroditic + Erectogenic but low efficacy and many CV side effects
α 5HT reuptake inhibitor	Trazodone	Inhibit reuptake of 5HT	Antidepressant + in treatment of ED	-	-	Cause Priapism
Nitric Oxide (NO) donor	Korean Ginseng	-	Erectile Dysfunction	-	-	
Prostaglandin Analogues	Alprostadil	PG E1 → ↑cAMP	-	1-Pain or bleeding at injection site 2-Cavernosal fibrosis. 3-Priapism.	-	Given by: intracavernosal Injection (Topical)
Papaverine	Papaverine	PG E1 → ↑cAMP + cGMP	-	-	-	Given by: intracavernosal Injection (Topical)