

Sympatholytic & adrenergic blockers α -receptor Antagonists

- SUMMARY
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- QUIZ

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Adrenergic Neuron Blockers

drugs work in the presynaptic neurons

Drug	Mechanism	Therapeutic Uses
<i>α-Methyl Dope</i>	<ul style="list-style-type: none"> <i>Forms false transmitter that is released instead of NE.</i> <i>Is a centrally acting α₂ adrenergic agonist that inhibits NE release.</i> 	<ul style="list-style-type: none"> <i>Treatment of hypertension in pregnancy (pre-eclampsia - gestational hypertension).</i>
<i>clonidine</i>	<ul style="list-style-type: none"> <i>Acts as α-2 receptor agonist to inhibit NE release.</i> <i>Suppresses sympathetic outflow activity from the brain.</i> 	<ul style="list-style-type: none"> <i>the management of withdrawal symptoms of opiate treatment, alcohol withdrawal, benzodiazepines and nicotine dependence.</i> <i>Little used as antihypertensive agent due to rebound hypertension upon abrupt withdrawal.</i>
<i>Apraclonidine</i>	<ul style="list-style-type: none"> <i>Decreasing aqueous humor formation.</i> 	<ul style="list-style-type: none"> <i>is used in open angle glaucoma as eye drops.</i>
<i>Reserpine</i>	<ul style="list-style-type: none"> <i>Depletion of Storage sites of NE.</i> 	-
<i>Guanethidine</i>	<ul style="list-style-type: none"> <i>Inhibition of release & enhance uptake of NE</i> 	-

Adrenergic alpha receptor blockers “adrenolytic”-“ antagonists “

Mechanism of all these drugs:

They block sympathetic actions by antagonizing the receptors.

Drug Name	Pharmacological Actions	Adverse Effects	Therapeutic Uses	contra-indicated
<p>Non-selective</p> <p><input type="checkbox"/> Phenoxybenzamine Irreversible block of both α_1 and α_2 receptors; - Long-acting (24 hrs).</p> <p><input type="checkbox"/> Phentolamine Reversible blocking of α_1 & α_2 receptors. - Short acting (4 hrs).</p>	<ul style="list-style-type: none"> - Vasodilatation of blood vessels (α_1 block). - Decrease peripheral vascular resistance. - Postural hypotension. - Increase in GIT motility and secretions. <ul style="list-style-type: none"> - Increase cardiac output (α_2 block).-check slide 6 to see the cause 	<ul style="list-style-type: none"> -Postural hypotension and syncope. -Tachycardia -Headache - Nasal stuffiness or congestion - Vertigo & drowsiness - Male sexual dysfunction (inhibits ejaculation). 	<p>Pheochromocytoma: Before surgical removal to protect against hypertensive crisis.</p>	<p>patients with decreased coronary perfusion.</p>
<p>α_1-selective</p> <p><input type="checkbox"/> Prazosin short half-life. <input type="checkbox"/> Doxazosin, long half lives. <input type="checkbox"/> Terazosin long half lives.</p>	<ul style="list-style-type: none"> - Vasodilatation due to relaxation of arterial and venous smooth muscles. - Fall in arterial pressure with less tachycardia than with non-selective α- blockers. 	-	<ul style="list-style-type: none"> - Treatment of hypertension - Urinary retention associated with benign prostatic hyperplasia. - Reynaud's disease. 	-
<p>selective α_{1A}*</p> <p><input type="checkbox"/> Tamsulosin</p>	<ul style="list-style-type: none"> - relaxation of smooth muscles of bladder neck & prostate →improve urine flow. -Has minimal effect on blood pressure. 	<p>as before with non selective but to a lesser degree</p>	<ul style="list-style-type: none"> -Treatment of benign prostatic hypertrophy (BPH). - Help with the passage of kidney stones 	-
<p>α_2-selective</p> <p><input type="checkbox"/> Yohimbine</p>	<ul style="list-style-type: none"> - Increase nitric oxide released in the corpus cavernosum thus producing vasodilator action and contributing to the erectile process. 	-	<ul style="list-style-type: none"> - aphrodisiac in the treatment of erectile dysfunction. 	-

SAQ

A 57 year old man who has benign prostatic hypertrophy comes in for a checkup and complains that he is having some difficulty in urination. Physical examination indicates that the man has a blood pressure of 130\85 mmHg which is normal according to his age .

Q1: what is the drug of choice in this case?

Tamsulosin.

Q2: Which type of adrenoceptor does it act on ?

alpha1A receptors which present in prostate and bladder neck.

Q3: What is the mechanism of action ?

relaxation of smooth muscles of bladder neck & prostate by blocking the alphaA1 receptors there →improve urine flow.

Q4:list one more clinical use for this drug ?

It Helps with the passage of kidney stones especially if the size of stones is less than 4 mm.

Q5:If the patient develop hypertension 2 weeks later, Are there any other drugs can be used or recommended in this case ?

Yes, the selective alpha1 -Antagonists such as Prazosin, doxazosin, terazosin can be useful for both conditions.

Q6:list some Adverse Effects for these drug ?

Postural hypotension.
Reflex Tachycardia.
Headache & drowsiness.
Nasal stuffiness or congestion.

Zoom in to check
your answers

QUIZ

Q1) A 19 pregnant woman in her 22 week came to the clinic, she presented with Gestational Hypertension which may lead to pre-eclampsia for both mom and baby. What is the drug of choice in this case as anti-hypertensive ?

A- Clonidine. B- Apraclonidine. C- a-Methyl dopa. D- Phentolamine.

Q2) Which one of the following Sympatholytic drugs can be used as eye drop for patient who has open angle glaucoma and he did not respond to timolol ?

A- Reserpine. B- Apraclonidine. C- Gaunethidine. D- Terazosin.

Q3) Which of the following is correct regarding Apraclonidine ?

- A- It act as alpha-2 antagonist.
- B- It is contraindication in patient with hypertension.
- C- It can be used in the treatment of glaucoma by decreasing aqueous humor formation.
- D- All of them

Q4) A 49-year-old woman presented to the Outpatient Clinic, with right upper abdominal pain and backache that had lasted 10 days. She had no palpitation, sweating. Finally she has diagnosed with Adrenal Pheochromocytoma. which kind of drugs can be used to prevent Hypertensive crisis during the surgical remove of the mass ?

- A- selective alpha1 antagonists
- B- selective alpha2 agonists
- C- selective beta antagonists
- D- non-selective alpha antagonists

Q5) Which one of the following drugs will produce the strongest tachycardiac effect (reflex tachycardia)?

A- Prazosin B- Doxazosin. C- Tamsulosin. D- Phenoxybenzamine.

Online Quiz ..

[https://www.onlineexambuilder.com/pharmacology-alpha-](https://www.onlineexambuilder.com/pharmacology-alpha-antagonist/exam-136889)

[antagonist/exam-136889](https://www.onlineexambuilder.com/pharmacology-alpha-antagonist/exam-136889)

5 ←
4 ←
3 ←
2 ←
1 ←

Q6) Which one of the following alpha-receptor antagonists can be used to treat a male with erectile dysfunction ?

A- Apraclonidine. B- Prazosin. C- Tamsulosin. D- Yohimbine.

Q7) Which one of the following drugs can be given to patient came to the clinic with numb and cold blueish extremities due to peripheral vasoconstriction?

A- Clonidine. B- Doxazosin. C- Tamsulosin. D-Phenoxybenzamine.

Q8) Which one of the following drugs does not use as antihypertensive drugs ?

A- Doxazosin. B-Terazosin. C- Tamsulosin. D- α -methyl dopa.

Q9) A 57 year old man who has benign prostatic hypertrophy comes in for a checkup and complains that he is having some difficulty in urination. Physical examination indicates that the man has a blood pressure of 160\100 mmHg. which of the following medications would be useful in this conditions?

A- Clonidine. B- Terazosin. C- Tamsulosin. D- Yohimbine.

Q10) A 70-year-old male needs to be treated with an α -blocker for overflow incontinence due to his enlarged prostate. Which of the following drugs would you suggest in this patient that will not affect his blood pressure significantly?

A- Phentolamine. B- Prazosin. C- Terazosin. D- Tamsulosin.

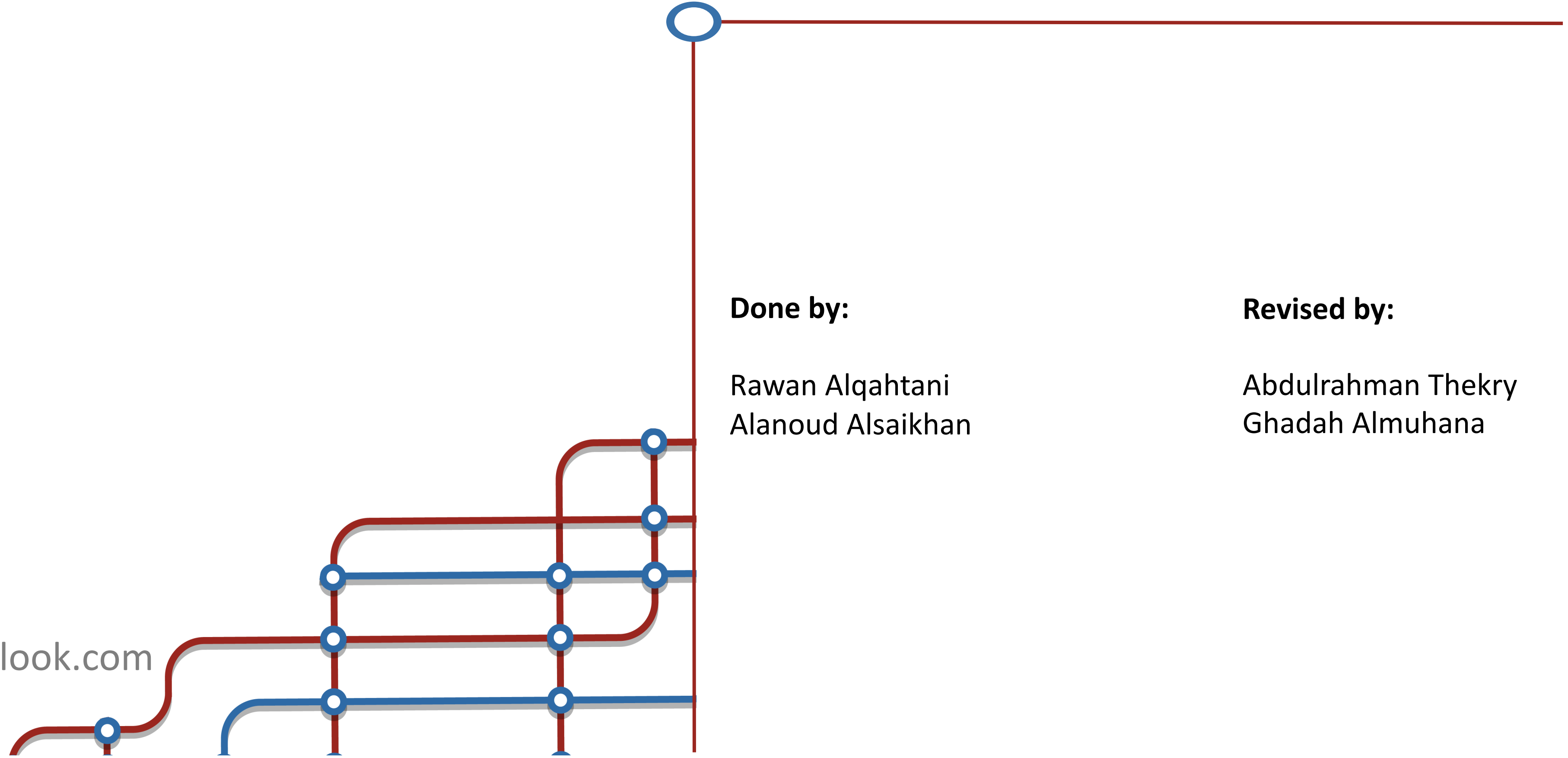
Q11) A 60-year-old female patient started on a new antihypertensive medication recently. Her blood pressure seems to be under control, but she complains of fatigue, drowsiness, and fainting when she gets up from the bed (orthostatic hypotension). Which of the following drugs is she most likely taking?

A- Clonidine. B-Prazosin. C- Metoprolol. D-Timolol.

Q12) Which of the following is correct regarding α -adrenergic blockers?

- A- α -Adrenergic blockers are used in the treatment of hypotension in anaphylactic shock.
- B- α -Adrenergic blockers are used in the treatment of benign prostatic hyperplasia .
- C- α -Adrenergic blockers reduce the frequency of urination.
- D- α -Adrenergic blockers may cause bradycardia.

12 ← B
11 ← B
10 ← D
9 ← B
8 ← C
7 ← B
6 ← D



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