

# COMBINATION HYPERTENSION TREATMENTS (Part 1 of 4)

## Recommendation for drug combination in uncomplicated hypertension<sup>†</sup>

<b>*Preferred Combination</b>	<b>Acceptable Combination</b>	<b>NOT Preferred Combination</b>
• ACEI + thiazide	• CCB + thiazide	• ACEI + ARB
• ACEI + dihydropyridine CCB	• Thiazide + K <sup>+</sup> -sparing diuretic	• β-blocker + ACEI or ARB
• ARB + thiazide	• Aliskiren + thiazide or CCB	• β-blocker + nondihydropyridine CCB
• ARB + dihydropyridine CCB	• β-blocker + diuretic or dihydropyridine CCB	• β-blocker + central acting (clonidine, etc)

<b>Generic</b>	<b>Brand</b>	<b>Strength</b>	<b>Form</b>	<b>Usual Adult Dose</b>
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### \*ACE INHIBITOR + THIAZIDE DIURETIC

benazepril/HCTZ	<b>Lotensin HCT</b>	5mg/6.25mg, 10mg/12.5mg, 20mg/12.5mg, 20mg/25mg	scored tabs	To switch from benazepril monotherapy: initially 10/12.5mg once daily. Or, titrate individual components.
captopril/HCTZ	—	25mg/15mg, 25mg/25mg, 50mg/15mg, 50mg/25mg	scored tabs	Take 1hr before meals. As initial therapy: one 25/15 tab daily; adjust at 6wk intervals. Previously titrated: use same doses as individual components. Usual max 150mg captopril, 50mg HCTZ daily.
enalapril/HCTZ	<b>Vaseretic</b>	10mg/25mg	tabs	Switching from monotherapy with either component: start with 10/25 once daily, then adjust; max 20mg enalapril/day and 50mg HCTZ/day. Allow 2–3wks for titration of HCTZ component. Or, substitute for individually titrated components.
lisinopril/HCTZ	—	10mg/12.5mg, 20mg/12.5mg+	tabs	Not for initial therapy. Initially 10mg/12.5mg or 20mg/12.5mg; increase HCTZ dose 2–3wks after. Max 80mg/50mg daily. CrCl <30mL/min: not recommended.
	<b>Zestoretic</b>	10mg/12.5mg, 20mg/12.5mg, 20mg/25mg	tabs	Switching from monotherapy with either component: initially 10/12.5 or 20/12.5 once daily, then after 2–3wks titrate HCTZ component. If on diuretic: if possible, suspend diuretic for 2–3 days, then adjust. Or, substitute for individually titrated components. CrCl ≤30mL/min: not recommended.
moexipril/HCTZ	—	7.5mg/12.5mg, 15mg/12.5mg, 15mg/25mg	scored tabs	Take 1hr before a meal. Switching from monotherapy with either component: 1 tab once daily; adjust at 2–3-week intervals; usual max 30mg/50mg per day. Or, substitute for individually titrated components. CrCl ≤40mL/min: not recommended.
quinapril/HCTZ	<b>Accuretic</b>	10mg/12.5mg+, 20mg/12.5mg+, 20mg/25mg	tabs	Not for initial therapy. Previously titrated: use same doses as individual components. Switching from quinapril monotherapy: initially one 10/12.5 tab or one 20/12.5 tab once daily; allow 2–3wks before increasing HCTZ component. Switching from HCTZ 25mg/day monotherapy: initially one 10/12.5 tab daily or one 20/12.5 tab once daily. Adjust based on response and serum potassium. CrCl ≤30mL/min: not recommended.

### ACE INHIBITOR + CALCIUM CHANNEL BLOCKER (DIPHENYLALKYLAMINE)

trandolapril/verapamil (ext-rel)	<b>Tarka</b>	1mg/240mg, 2mg/180mg, 2mg/240mg, 4mg/240mg	tabs	Titrate individual components. Take with food. 1 tab daily.
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## COMBINATION HYPERTENSION TREATMENTS (Part 2 of 4)

Generic	Brand	Strength	Form	Usual Adult Dose
<b>ANGIOTENSIN II RECEPTOR BLOCKER + CALCIUM CHANNEL BLOCKER (DIHYDROPYRIDINE) + THIAZIDE DIURETIC</b>				
olmesartan/ amlodipine/HCTZ	<b>Tribenzor</b>	20mg/5mg/12.5mg, 40mg/5mg/12.5mg, 40mg/5mg/25mg, 40mg/10mg/12.5mg, 40mg/10mg/25mg	tabs	One tab once daily. May titrate at 2-week intervals; max one 40/10/25mg tab daily. <i>≥75yrs or severe hepatic impairment</i> : start amlodipine 2.5mg.
valsartan/ amlodipine/HCTZ	<b>Exforge HCT</b>	160mg/5mg/12.5mg, 160mg/5mg/25mg, 160mg/10mg/12.5mg, 160mg/10mg/25mg, 320mg/10mg/25mg	tabs	One tab daily. Titrate at 2-week intervals; max one 320mg/10mg/25mg tab daily. <i>Replacement therapy</i> : may be substituted for individually titrated components. <i>Add-on/switch therapy</i> : may be used to provide additional BP lowering for patients not adequately controlled on doses of any two antihypertensive classes: ARBs, CCBs, and diuretics.
<b>*ANGIOTENSIN II RECEPTOR BLOCKER + THIAZIDE DIURETIC</b>				
azilsartan/ chlorthalidone	<b>Edarbyclor</b>	40mg/12.5mg, 40mg/25mg	tabs	Initially 40/12.5mg once daily. May increase to 40/25mg after 2–4wks as needed. <i>Max</i> : 40/25mg. <i>Patients titrated to the individual components</i> : may give corresponding dose of Edarbyclor. See full labeling.
candesartan/HCTZ	<b>Atacand HCT</b>	16mg/12.5mg, 32mg/12.5mg, 32mg/25mg	scored tabs	Not for initial therapy. May be substituted for titrated components. <i>BP not controlled on HCTZ 25mg once daily, or controlled but serum potassium decreased</i> : one 16/12.5 tab once daily. <i>BP not controlled on candesartan 32mg per day</i> : initially one 32/12.5 tab once daily; may increase to 32/25 once daily. <i>CrCl ≤30mL/min</i> : not recommended.
irbesartan/HCTZ	<b>Avalide</b>	150mg/12.5mg, 300mg/12.5mg	tabs	Take once daily. <i>Not controlled on monotherapy</i> : initially 150/12.5mg, titrate to 300/12.5mg then 300/25mg if needed. <i>Replacement therapy</i> : may be substituted for titrated components. <i>Initial therapy</i> : start at 150/12.5mg for 1–2wks, then titrate as needed up to max 300/25mg. Maximum effects within 2–4wks after dose change. <i>CrCl ≤30mL/min</i> : not recommended.
losartan/HCTZ	<b>Hyzaar</b>	50mg/12.5mg, 100mg/12.5mg, 100mg/25mg	tabs	One 50/12.5mg tab once daily; may increase after about 3wks (2–4wks for severe HTN) to two 50/12.5mg tabs once daily or one 100/25mg tab once daily. <i>Titrate components</i> : see literature. <i>HTN with LVH</i> : switch from losartan monotherapy (see literature). <i>CrCl &lt;30mL/min</i> : not recommended.
olmesartan/HCTZ	<b>Benicar HCT</b>	20mg/12.5mg, 40mg/12.5mg, 40mg/25mg	tabs	Not for initial therapy. May be substituted for titrated components. Individualize. <i>BP not controlled on olmesartan alone</i> : initially 40mg/12.5mg once daily. <i>Intolerant to or BP not controlled on HCTZ alone</i> : initially 20mg/12.5mg once daily. <i>Both</i> : may titrate at 2–4 week intervals up to max 40mg/25mg once daily. <i>CrCl ≤30mL/min</i> : not recommended. <i>Volume depleted</i> : reduce dose.

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## COMBINATION HYPERTENSION TREATMENTS (Part 3 of 4)

Generic	Brand	Strength	Form	Usual Adult Dose
<b>*ANGIOTENSIN II RECEPTOR BLOCKER + THIAZIDE DIURETIC (continued)</b>				
telmisartan/HCTZ	<b>Micardis HCT</b>	40mg/12.5mg, 80mg/12.5mg, 80mg/25mg	tabs	Not for initial therapy. May be substituted for titrated components. <i>BP not controlled on telmisartan 80mg/day</i> : 80mg/12.5mg once daily. <i>BP not controlled on HCTZ 25mg/day or BP controlled but hypokalemic</i> : 80mg/12.5mg once daily. <i>Both</i> : may titrate up to 160mg/25mg after 2–4wks. <i>Hepatic insufficiency or biliary obstruction</i> : initially 40mg/12.5mg once daily; monitor closely. <i>Severe renal or hepatic impairment</i> : not recommended.
valsartan/HCTZ	<b>Diovan HCT</b>	80mg/12.5mg, 160mg/12.5mg, 160mg/25mg, 320mg/12.5mg, 320mg/25mg	tabs	Take once daily. <i>Add-on or initial therapy and not volume-depleted</i> : Initially 160mg/12.5mg; may increase after 1–2wks up to max 320mg/25mg. <i>Replacement therapy</i> : may be substituted for the titrated components. Maximum effects within 2–4wks after dose change. <i>CrCl ≤30mL/min</i> : not recommended.
<b>BETA-BLOCKER + THIAZIDE DIURETIC</b>				
atenolol/ chlorthalidone	<b>Tenoretic</b>	50mg/25mg+, 100mg/25mg	tabs	<i>Switching from monotherapy</i> : initially one 50mg/25mg tab daily; may increase to one 100mg/25mg tab daily. <i>CrCl 15–35mL/min</i> : max 50mg atenolol/day. <i>CrCl &lt;15mL/min</i> : max 50mg atenolol every other day.
bisoprolol/HCTZ	<b>Ziac</b>	2.5mg/6.25mg, 5mg/6.25mg, 10mg/6.25mg	tabs	Initially one 2.5mg/6.25mg tab once daily. Adjust at 14-day intervals; max two 10mg/6.25mg tabs once daily.
metoprolol tartrate/ HCTZ	<b>Lopressor HCT</b>	50mg/25mg, 100mg/25mg	scored tabs	Titrate individual components.
metoprolol succinate extended- release/HCTZ	<b>Dutoprol</b>	25mg/12.5mg, 50mg/12.5mg, 100mg/12.5mg	tabs	Individualize. Initially 25mg/12.5mg once daily; may titrate at 2-week intervals to max 200mg/25mg once daily. May substitute for individual titrated components. <i>CrCl ≤30mL/min</i> : not established.
nadolol/ bendroflumethiazide	<b>Corzide</b>	40mg/5mg, 80mg/5mg	scored tabs	Titrate components. <i>Renally impaired</i> : increase dosing interval; see literature.
propranolol/HCTZ	—	40mg/25mg	scored tabs	Titrate individual components.
<b>*CALCIUM CHANNEL BLOCKER (DIHYDROPYRIDINE) + ACE INHIBITOR</b>				
amlodipine/ benazepril	<b>Lotrel</b>	2.5mg/10mg, 5mg/10mg, 5mg/20mg, 5mg/40mg, 10mg/20mg, 10mg/40mg	caps	<i>Not adequately controlled with dihydropyridine CCB, ACE inhibitor, unable to achieve BP control with amlodipine without developing edema</i> : Initially 2.5mg/10mg once daily; may titrate up to 10mg/40mg once daily if BP remains uncontrolled. <i>Replacement therapy</i> : may be substituted for titrated components. <i>CrCl ≤30mL/min</i> : not recommended.
amlodipine/ perindopril	<b>Prestalia</b>	2.5mg/3.5mg, 5mg/7mg, 10mg/14mg	tabs	Initially 3.5mg/2.5mg once daily. Adjust at 7–14 day intervals; max 14mg/10mg once daily. <i>Renal impairment</i> : ( <i>CrCl 30–80mL/min</i> ): max 7mg/5mg; ( <i>CrCl &lt;30mL/min</i> ): not recommended.

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## COMBINATION HYPERTENSION TREATMENTS (Part 4 of 4)

Generic	Brand	Strength	Form	Usual Adult Dose
<b>*CALCIUM CHANNEL BLOCKER (DIHYDROPYRIDINE) + ANGIOTENSIN II RECEPTOR BLOCKER</b>				
amlodipine/ olmesartan	<b>Azor</b>	5mg/20mg, 5mg/40mg, 10mg/20mg, 10mg/40mg	tabs	Individualize. Initially 5mg/20mg once daily; may increase after 1–2 weeks up to max 10mg/40mg daily. <i>≥75yrs or hepatic impairment:</i> initial therapy not recommended.
amlodipine/ telmisartan	<b>Twynsta</b>	5mg/40mg, 5mg/80mg, 10mg/40mg, 10mg/80mg	tabs	Take once daily. <i>Initial therapy:</i> 5/40mg or 5/80mg; may titrate at 2-week intervals to max 10/80mg. <i>Add-on therapy:</i> may be used if not controlled on monotherapy; if dose-limiting adverse reactions with amlodipine 10mg, switch to 5/40mg tab. <i>Replacement therapy:</i> may be substituted for the titrated components. <i>Renal and/or hepatic impairment:</i> titrate slower. <i>≥75yrs, or hepatic impairment:</i> not for initial use (initially use amlodipine alone, or add amlodipine 2.5mg to telmisartan).
amlodipine/ valsartan	<b>Exforge</b>	5mg/160mg, 5mg/320mg, 10mg/160mg, 10mg/320mg	tabs	Take once daily. <i>Initial therapy and not volume depleted:</i> Initially 5/160mg; may increase after 1–2wks up to max 10/320mg. <i>Add-on therapy:</i> may be used if not controlled on monotherapy; if inadequate response after 3–4wks, may titrate up to max 10/320mg. <i>Replacement therapy:</i> may be substituted for the titrated components. Maximum effects within 2wks after dose change. <i>Elderly, hepatic impairment:</i> initial therapy not recommended.
<b>CENTRAL ALPHA-AGONIST + THIAZIDE DIURETIC</b>				
methyldopa/HCTZ	—	250mg/15mg, 250mg/25mg	tabs	Titrate individual components. Initially one 250mg/15mg tab 2–3 times daily or one 250mg/25mg tab 2 times daily.
<b>DIRECT RENIN INHIBITOR + THIAZIDE DIURETIC</b>				
aliskiren/HCTZ	<b>Tekturma HCT</b>	150mg/12.5mg 150mg/25mg 300mg/12.5mg 300mg/25mg	tabs	Take consistently with regard to meals. 1 tab once daily. <i>Add-on or initial therapy and not volume-depleted:</i> initially 150mg/12.5mg; may increase after 2–4wks up to max 300mg/25mg. <i>Replacement therapy:</i> substitute for the titrated components.
<b>K<sup>+</sup> SPARING DIURETIC + THIAZIDE DIURETIC</b>				
amiloride/HCTZ	—	5mg/50mg	scored tabs	Initially 1 tab daily with food. May increase to 2 tabs daily in single or divided doses.
spironolactone/ HCTZ	<b>Aldactazide</b>	25mg/25mg, 50mg/50mg+	tabs	<i>Usual maintenance:</i> 50/100mg each of spironolactone and HCTZ daily in single or divided doses.
triamterene/HCTZ	<b>Dyazide</b>	37.5mg/25mg	caps	1–2 caps once daily.
	<b>Maxzide</b>	37.5mg/25mg, 75mg/50mg	scored tabs	1–2 tabs of 37.5/25 daily or 1 tab of 75/50 daily.

### NOTES

**Key:** HCTZ = hydrochlorothiazide; + = scored.

Not an inclusive list of medications, official indications, and/or dosing details. Please see drug monograph at [www.eMPR.com](http://www.eMPR.com) and/or contact company for full drug labeling.

(Rev. 11/2017)