Alternatives to Nifedipine in the Oral Treatment of Hypertensive Urgencies (HU)

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Summary of recent literature:

• It is important to **distinguish HU from true hypertensive emergencies** which usually require **IV** therapy (with nitroprusside, nitroglycerin, labetalol, etc.) and hospitalization. The presence of acute or ongoing end organ damage constitutes a hypertensive emergency rather than a HU.

• Asymptomatic patients with severe hypertension may not benefit from acute BP reduction and lowering BP too rapidly in patients with cardiovascular risk factors, can be harmful (↑ risk of MI, stroke, & mortality).

• A short period (30+ min) of **rest in a quiet, dark room** often is effective in lowering BP 15-20% & is usually recommended for initial management.

• The four oral agents most used in HU are nifedipine, clonidine, captopril, and labetolol. Literature regarding the use of oral agents is not well established.

• Concerns regarding **short acting nifedipine (Adalat)** have arisen due to association with increased AMI, CVA & mortality. Revised labeling for short acting nifedipine in the USA **recommends against its use in hypertensive crisis**. The recent report of the **JNC VI** (Nov, 1997) also cautioned against the use of nifedipine in hypertensive crisis. In practice, this concern may be greater in older individuals and those at higher risk of cardiovascular/cerebrovascular disease. As always, the risk verses benefit ratio must be considered.

• **Captopril** and **Clonidine** have been suggested as better oral alternatives to nifedipine based on the current understanding of their cardiovascular & cerebral effects. (See Table: Hypertensive Urgencies - Oral Antihypertensives)

Table: Hypertensive Urgencies - Oral Antihypertensives

Drug	Administration	Duration	Advantages	Disadvantages / Contraindications
Captopril CAPOTEN®	**SL/PO** 3.125 - **12.5mg;** (up to 25mg) onset: 10-15 min (SL), 15-30 min (PO) peak effect: 60 min (SL), 1-2 h (PO)	4-8 h	•Possibly beneficial effects on cerebral autoregulation and blood flow; may favorably effect regional myocardial perfusion; reduces pre- and afterload; no fluid retention; excellent for CHF and scleroderma •SL / PO / or Crush & Chew	•Bilateral renal artery stenosis; heavy proteinuria; immunosuppressive drugs; immune-mediated diseases; pregnancy •Fine control of BP not possible. •Beware in volume depleted patients & high renin states (patients on diuretics).
Clonidine CATAPRES®	**0.05 - 0.2mg PO;** (e.g. initial 0.2mg, then 0.1mg q1h) onset: 30-60 min peak effect: 2-4 h can repeat q1-2h (total dose 0.6-0.8mg)	3-12 h	•Decreases heart rate and no increase in myocardial oxygen consumption.	•**Sedation** in up to 50%; orthostatic hypotension; can dramatically decrease cerebral blood flow; avoid in CHF due to decreased cardiac output and in > than first degree heart block. •Fine control of BP not possible; profound falls reported; decrease dose if > 60y/o, recent antihypertensives, volume depletion.
Labetalol TRANDATE®	**200 - 400mg PO;** onset: variable (30-120min) peak effect: 3 - 4 h food increases but delays onset.	8-12 h	•Favorable cardiac and possibly CNS effects	•**Heart failure; reactive airway disease; second and third degree heart block**; no dose which will reliably lower BP within a couple of hours in the majority of patients.
Nifedipine ADALAT®	**5-10mg PO/bite & swallow** onset: 5-20 min peak effect: 30-60 min ☞ **revised labeling recommends against its use in hypertensive crisis!**	2-6 h	•**Rapid onset**; dilates coronary arteries and relieves spasm; usually does not decrease cardiac output.	•**Reflex tachycardia** lasting 1 h; can precipitate angina in patients with high grade stenosis; nonhomogeneous cerebral perfusion; possible increase **risk of MI, CVA, & mortality** with regular nifedipine. •Fine control of BP not possible; large falls in BP after 10 mg dose .

•True Hypertensive Emergencies usually require **IV** therapy (eg. Sodium nitroprusside, Nitroglycerin, Enalaprilat, Hydralazine, Labetalol, Esmolol)

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