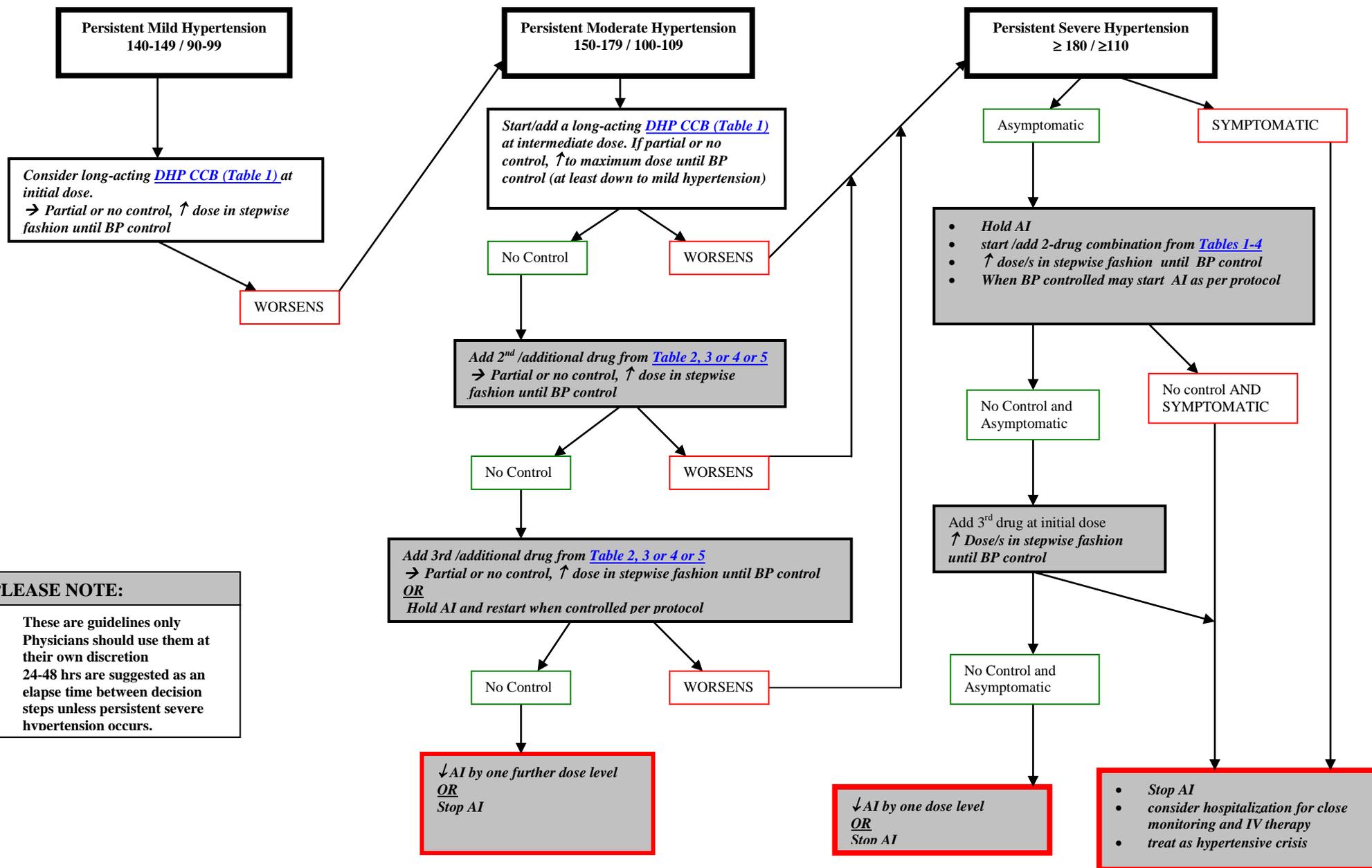


## Appendix 8: Management of Angiogenesis Inhibitor (AI)-induced Hypertension



**Table 1. Dihydropyridine calcium-channel blockers**

| Agent                                     | Initial dose                                | Intermediate dose         | Maximum dose                              | Hepatic metabolism?   |
|---|---|---------------------------|---|---|
| Nifedipine XL<br>Amlodipine<br>Felodipine | 30 mg po qd<br>2.5 mg po qd<br>2.5 mg po qd | 60 mg po qd<br>5 mg po qd | 90 mg po qd<br>10 mg po qd<br>10 mg po qd | CYP 3A4 substrate<br>CYP 3A4 substrate<br>CYP 3A4 substrate + inhibitor |

▲ [Top](#)**Table 2: Selective  $\beta$  blockers**

| Agent  | Initial dose   | Intermediate dose  | Maximum dose  | Hepatic metabolism?   |
|--|--|--|---|---|
| Metoprolol<br>Atenolol<br>Acebutolol<br>Bisoprolol | 25 mg po bid<br>25 mg po qd<br>100 mg po bid<br>2.5 mg po qd | 50 mg po bid<br>50 mg po qd<br>200mg-300 mg po bid<br>5-10 mg po bid | 100 mg po bid<br>100 mg po qd<br>400 mg po bid<br>20 mg po qd | CYP 2D6 substrate<br>No<br>Yes (CYP 450???)<br>Yes (CYP 450???) |

▲ [Top](#)**Table 3. Angiotensin Converting Enzyme Inhibitors (ACEIs)**

| Agent  | Initial dose  | Intermediate dose  | Maximum dose  | Hepatic metabolism?   |
|--|---|--|---|---|
| Captopril<br>Enalapril<br>Ramipril<br>Lisinopril<br>Fosinopril<br>Rarely used:<br>Perindopril<br>Quinapril | 12.5 po tid<br>5 mg po qd<br>2.5 mg po qd<br>5 mg po qd<br>10 mg po qd<br>4mg po qd<br>10mg po qd | 25 mg po tid<br>10-20 mg po qd<br>5 mg po qd<br>10-20 mg po qd<br>20 mg po qd<br>none<br>20 mg po qd | 50 mg po tid<br>40 mg po qd<br>10 mg po qd<br>40 mg po qd<br>40 mg po qd<br>8mg po qd<br>40 mg po /qd | CYP 2D6 substrate<br>CYP 3A4 substrate<br>Yes (CYP 450???)<br>No<br>Yes (CYP 450???)<br>Yes but not per CYP 450<br>No |

▲ [Top](#)**Table 4. Angiotensin II Receptors Blockers (ARBs)**

| Agent   | Initial dose  | Intermediate dose  | Maximum dose   | Hepatic metabolism?   |
|---|---|--|--|---|
| Losartan<br>Candesartan<br>Irbesartan<br>Telmisartan<br>Valsartan | 25mg po qd<br>4mg po qd<br>75mg po qd<br>40 mg po qd<br>80 mg po qd | 50 mg po qd<br>8-16 mg po qd<br>150 mg po qd<br>none<br>none | 100 mg po qd<br>32mg po qd<br>300 mg po qd<br>80 mg po qd<br>160mg po qd | CYP 3A4 substrate<br>CYP 2C9 substrate<br>CYP 2C9 substrate<br>Yes but not per CYP 450<br>Yes but not per CYP 450 |

▲ [Top](#)**Table 5.  $\alpha$  and  $\beta$  blocker**

| Agent     | Initial dose  | Intermediate dose | Maximum dose  | Hepatic metabolism?             |
|-----------|---------------|-------------------|---------------|---------------------------------|
| Labetolol | 100 mg po bid | 200 mg po bid     | 400 mg po bid | CYP 2D6 substrate and inhibitor |

▲ [Top](#)

**NB. Agents in bold characters are suggested as optimal choices to avoid or minimize potential drug-interactions with angiogenesis inhibitors metabolised through CYP-450 (e.g. sunitinib and sorafenib)**