



Blood Pressure control

Assessment:

Measure blood pressure at least annually in a person without previously diagnosed hypertension or renal disease.

For a person on antihypertensive therapy at diagnosis of diabetes, review control of blood pressure and medications used.

Target BP:

All patients with diabetes: <140/80

If kidney, eyes or cerebrovascular disease: <130/80

Monitoring:

Repeat blood pressure (BP) measurements within:

- 1 month if BP is higher than 150/90 mmHg
- 2 months if BP is higher than 140/80 mmHg or higher than 130/80 with established microvascular disease.

Monitor BP every 4-6 months once targets are achieved.

Check for side effects of antihypertensive therapy

Management:

- Hypertension should be treated by lifestyle advice (diet and exercise) and drug therapy
- Add antihypertensive medications if lifestyle intervention does not reduce blood pressure to below 140/80 mmHg (<130/80 mmHg if there is kidney, eye or cerebrovascular damage).
- For optimal control most patients will require more than one agent.
- First line agent could be an ACE inhibitors (or ARBs if intolerant) or calcium channel blockers or thiazide-type diuretics (B-blockers generally avoided as first line)
- The choice of **antihypertensive agent** based on Compelling indications and relevant contra-indications

BP management in diabetes nephropathy (microalbuminuria or proteinuria):

- . Anti-hypertensive therapy can reduce urinary albumin excretion and delay progressive decline in renal functions.
- . The greatest renal benefits have been observed in trials with ACE inhibitors in type-1 diabetes and ARBs in type-2 diabetes.
- . The benefit is independent of blood pressure lowering effect.
- . Measure renal functions and electrolytes 1-2 weeks after initiation of ACE inhibitors and ARBs and with each increase in dose
- . Target BP <130/80 is recommended.
- . Other agents may be added as required to achieve target BP.
- . ACE inhibitors & ARBs contraindicated in pregnancy.

Indications for Referral to specialist services:

- Patients who do not achieve desired target
- BP difficult to control despite being compliant on 3-4 agents
- Clinical suspicion of secondary cause of hypertension
- Evidence of worsening nephropathy (proteinuria and/or renal functions)
- Rise in serum creatinine (>20% from baseline) after commencement of ACE inhibitor or ARB

Useful links:

- British Hypertension Society guidelines for hypertension management 2004 (BHS-IV): summary. Br Med J 2004; 328; 634-640;
<http://www.bhsoc.org/pdfs/Summary%20Guidelines%202004.pdf>
- NICE T2 Diabetes management guidelines CG66 2008;
<http://www.nice.org.uk/nicemedia/live/11983/40803/40803.pdf>
- NICE Hypertension guidelines CG129 2011;
<http://www.nice.org.uk/nicemedia/live/13561/56008/56008.p>

Antihypertensive Agents

Choice based on COMPELLING Indications & RELEVANT Contra-indications

Class	Drug	Standard dose	Compelling indications	Important contra - indications	Report if
Diuretic	Bendrofluazide	2.5mg od	Elderly, systolic hypertension	Hyponatremia	Electrolyte disturbance especially low K ⁺
B-blocker	Atenolol	25 –100mg od	IHD	Airways obstruction, heart block, peripheral vascular disease, cardiac failure.	Bradycardia<60 / min
ACE inhibitor	Ramipril	10mg od	Cardiac failure Diabetes nephropathy	Preganancy, chronic renal failure, reno-vascular disease, peripheral vascular disease	Cough, electrolyte disturbance, rising creatinine>10%
ARBs	Losartan Irbesartan	100 mg 300 mg	Where ACE inhibitors cause cough	As for ACE Inhibitors	As above
Calcium antagonists (dihydropyridine)	Felodipine Amlodipine	10mg od	Systolic hypertension, IHD		Oedema
Calcium antagonists (rate limiting)	Diltiazam XL	180 –360mg od	IHD	Combination with B blocker, cardiac failure, heart block	Bradycardia<60 /min, oedema
Alpha blocker	Doxazosin XL	8mm od	Prostatism	Urinary incontinence, cardiac failure	Urine incontinence especially in women