HYPERTENSION UPDATE: IN PHARMACY

Pharmacists have an important clinical role in evaluating the efficacy of new antihypertensive medication when these therapies are dispensed. “The pharmacist is in an ideal position to identify non-responders early, thereby saving both lives and costs,” said Dr Natie Finkelstein, consultant pharmacist.

The approach of the pharmacist to hypertension care in pharmacy is (a) to screen at-risk clients in periodic patient education campaigns (Table 1); (b) to monitor blood pressure when antihypertensive medication is repeated and engage with the prescriber if there are problems (ineffective medication, side effects); (c) where new hypertensives are concerned, to take an initial blood pressure reading, dispense medication and monitor blood pressure weekly if possible or using home-based monitoring.

Table 1. People at risk of hypertension – focus for screening characteristics

- Older patients (over 65 years of age)
- Overweight and obese patients
- Males
- Ethnic groups such as Africans and Asians
- Patients with diabetes, kidney disease
- Smokers and those using hypertension-inducing medicines (decongestants, stimulants, corticosteroids)
- Pregnant women

Effective hypertension care in pharmacy

The key elements of a successful hypertension care programme in pharmacy are:
1. Trained staff
2. Reliable, accurately calibrated equipment
3. Periodic patient education programmes
4. Screening of at-risk patients

The availability of a registered nurse who has undergone training in blood pressure measurement is a good starting point, but a standardised protocol should also be in place in pharmacy.

A useful web-based training video is available at www.abdn.ac.uk/medical/bhs/

Measurement of blood pressure in pharmacy – focus on equipment and protocols

All blood pressure equipment in the pharmacy must be regularly calibrated, including electronic devices and mercury sphygmomanometers. Poorly performed blood pressure measurements can lead to severe consequences, such as stroke, renal disease or catastrophic hypotension.

The most recent South African Hypertension Guidelines provide clear recommendations on blood pressure monitoring and should be used as the in-training protocol for all pharmacy staff involved in monitoring blood pressure (Table 2).
Ambulatory blood pressure monitoring service

Recent South African research has highlighted the need for ambulatory blood pressure measurement (ABPM), as the incidence of masked hypertension is very high among lower-income black South Africans. The rate of masked hypertension in these individuals was found to be 41%, which is a similarly high prevalence to that found in African Americans. This is of great concern to local healthcare providers, as these undetected cases of hypertension on normal clinic assessment will result in non-treatment and consequent stroke and hypertensive kidney disease. The use of 24-hour ABPM, on which the masked hypertension diagnosis in this study was based, showed high blood pressure levels during both day and night. The only indicator of masked hypertension in these otherwise healthy men and women was a calmer state of mind during clinic blood pressure measurement.

With South Africa’s high prevalence of hypertension, pharmacists have a key role to play in identifying possible hypertensives among their clients. A focus on ethnicity, obesity, pregnant women and people with diabetes for regular blood pressure screening could provide valuable health benefits and a contribution to lowered healthcare costs, consequent on avoided cardiovascular events and stroke.

Patient adherence to medication

Adherence to medication for chronic conditions is on average only 50% at 12 months post-initiation of therapy. Pharmacists are well placed to detect adherence-related problems using the patient’s dispensing records. While this does not ensure compliance (whether the patient actually took the medication), it is a good starting point. Failing to reach targeted blood pressure levels may be due to poor adherence, as is a sudden loss of blood pressure control.

Periodic patient education programmes run by community pharmacists have been shown to improve patient adherence to hypertensive and other chronic medications. Such programmes included mailing (or e-mailing) educational/motivational leaflets every 2-3 months. Pharmacist-physician collaboration can improve patient adherence, while pharmacist-led education about a particular medicine’s side effects can also improve patients’ motivation to continue therapy. When medicine cost is an issue, pharmacists can discuss more affordable, yet comparably effective, alternatives with the physician. The elderly patient may require more support from pharmacy staff.

Table 2. Recommendations for blood pressure measurement

- The systolic blood pressure should first be estimated by palpation to avoid missing the auscultatory gap
- Take two readings 1-2 minutes apart. If consecutive readings differ by >5mm, take additional readings
- At initial consultation measure blood pressure in both arms and, if discrepant, use the higher arm for future estimations
- The patient should be seated, back supported, arm bared and arm supported at heart level
- Patients should not have smoked or ingested caffeine-containing beverages/food in the previous 30 minutes
- An appropriate size cuff should be used: a standard cuff (12cm) for a normal arm and a larger cuff (15cm) for an arm with a mid-upper circumference >33cm (the bladder within the cuff should encircle 80% of the arm)
- Measure blood pressure after one and three minutes of standing at first consultation in the elderly, diabetics and in patients where orthostatic hypotension is common
- When adopting the auscultatory measurement use Korotkoff 1 and V (disappearance) to identify systolic blood pressure and diastolic blood pressure, respectively
- Take repeated measurements in patients with atrial fibrillation and other arrhythmias to improve accuracy
Early in-pharmacy identification of side effects of hypertension

The pharmacist is well placed to observe and refer patients with side effects such as swelling around the lips (indicative of angioedema in patients on some ACE-inhibitors), skin rashes or postural hypertension, which is of particular concern in the elderly and people living alone.

Special considerations for hypertension in certain South African populations:5

Blacks and Asians

Blacks are more prone to complications such as stroke, heart failure and renal failure, while the incidence of coronary heart disease, although increasing in frequency, is less common compared with that in whites and Asians.6 The prevalence of diabetes mellitus and the metabolic syndrome is higher in Asians than in other racial groups.7

Compared to whites, blacks respond poorly to ACE-inhibitors and β-blockers as monotherapy, but this difference disappears once these drugs are combined with diuretics. Overall, calcium channel blockers show the most consistent response in blacks compared to other classes of drugs used as monotherapy.5,9 However, there is a higher incidence of angioedema in blacks treated with an ACE-inhibitor.10

Hypertension in children and adolescents11, 12

Hypertension in children is an important issue. In adolescents, hypertension is increasingly linked to obesity and affects up to 10% of people between the ages of 15 and 25 years.13 The international trend of poor diet and lack of exercise in children is leading to an epidemic of obesity, with the early onset of hypertension and even type 2 diabetes. The early recognition of hypertension in these adolescents will be an important motivation for both children and parents to institute important lifestyle changes. These patients should be referred to specialist clinics.

HIV/AIDS

There are an estimated 5.8 million people living with HIV in South Africa. The coexistence of HIV with hypertension and diabetes is increasing, and patients should be screened for associated glomerulonephritis. Prolonged highly active antiretroviral therapy (HAART) is associated with a higher prevalence of systolic hypertension,14 and it is essential that blood pressure be monitored in all patients receiving HAART.

Two of the three major classes of antiretroviral drug, the protease inhibitors and the non-nucleoside reverse transcriptase inhibitors, are involved in many drug interactions by inhibiting or inducing the key hepatic enzyme system, cytochrome P450. Calcium channel blockers are the major class of antihypertensives affected by such drug interactions, leading to inhibition or induction of their metabolism.15,16 This results in either enhanced efficacy or a loss of antihypertensive efficacy.
Principles of switching antihypertensive medication

Cost-containment efforts can include drug switching without overt medical reasons in patients whose condition is already well controlled with pharmacotherapy. While pharmacists play a key role in selecting affordable, accredited and approved generics, the guidance for doctors and pharmacists on switching antihypertensives is poor. There is little information on equivalent doses or guidance to ensure that blood pressure control is maintained following drug substitution. Some rational principles for switching are summarised in Table 3 below.

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<tr>
<th>Table 3. Principles of switching antihypertensive medication as per the prescriber’s instructions</th>
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<tr>
<td>1. The new drug should be administered at a low dose and then titrated upwards</td>
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<td>2. The pharmacist should evaluate the half-life of the current medication that is to be discontinued, in order to ensure that the blood pressure does not drop precipitously</td>
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<td>3. Angiotensin receptor blockers (ARBs) and ACE-inhibitors are frequently switched and the pharmacist should check that the switch is appropriate for the individual patient in terms of other morbidities and medication</td>
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<td>4. Within-class substitution must consider differences in clinical outcomes between individual drugs of that particular class</td>
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<td>5. The effect of ongoing switching or frequent switching can negate any cost-benefit that was initially envisaged if patient adherence falters</td>
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<td>6. There should be particular attention given when switching from extended-release formulations to other formulations.</td>
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Conclusion

The provision of improved hypertension care within pharmacy is essential to improving the care of at-risk people and people already diagnosed with hypertension in South Africa.

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<th>In-pharmacy tips for better medicine selection for hypertensive patients</th>
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<tr>
<td>• The target blood pressure for antihypertensive management is systolic &lt;140mmHg and diastolic &lt;90mmHg with minimal or no side effects</td>
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<td>• As a general rule ACE-inhibitors and calcium channel blockers are the preferred agents. (South African Hypertension Guidelines provide a table of indications/contraindications for all major drug classes)</td>
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<td>• Enalapril is associated with more cases of angioedema and should be avoided in high-risk patients. Use other ACE-inhibitors</td>
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<tr>
<td>• ACE-inhibitors are more beneficial for hypertensive diabetic patients and those with kidney disease</td>
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<td>• Calcium channel blockers are contraindicated in pregnancy before 22 weeks’ gestation</td>
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<td>• Special populations, e.g. blacks, Asians, children and people with HIV on antiretroviral therapy, require special approaches (see previous section)</td>
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<td>• Combination therapy is recommended as starting medication, if the systolic blood pressure is 20mmHg above target levels or diastolic is 10mmHg higher than desired</td>
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<td>• ARBs are as effective as ACE-inhibitors with fewer side effects.</td>
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References


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