**Hypertension follow up review**

PSPs reviewed **253** patients for an initial baseline review and **117 (46%)** patients were seen for a follow up consultation. **136** **(54%)** were not followed up by a PSP.

**Patients who were not followed up**

**136 patients did not have a follow up consultation as:**

* **22** **(16%)** were not invited for a follow up consultation as their blood pressure, during the baseline consultation, was within the normal range and there were no other actions to follow up.
* **76 (56%)** patients could not attend a follow up clinic (DNAs, cancelled appointment, left practice, were abroad or moved area).
* **38** **(28%)** patients had already been followed up by a health care professional/GP and did not need a further review.

Where PSPs could not follow up patients they recorded any blood pressure readings taken after the initial consultation. 62 patients had a blood pressure reading taken by another healthcare professional after the initial consultation. The table below shows recorded changes in systolic blood pressure.

|  |  |
| --- | --- |
| **Change in Systolic Blood Pressure** | **Number of patients** |
| **No change in systolic blood pressure** | **2** **(3%)** |
| **Increase in systolic blood pressure** | **16** **(26%)** |
| **Reduction in systolic blood pressure** | **44** **(71%)** |
| **Total** | **62** |

We are aware that PSPs made a number of recommendations after the initial consultation, but as these patients could not be seen for follow up it is difficult to determine the exact reasons for the reduction in systolic blood pressure and identify any improvements in adherence to antihypertensive medication.

**Patients who were followed up**

**117 patients were seen by a PSP for a follow up consultation.**

**The change in blood pressure between the first and second consultation could not be established for 3 patients as:**

* 1 patient was awaiting a follow up ABPM.
* 1 patient had large arms and a reading could not be taken, but their HBPM readings were fine.
* Could not measure blood pressure during the first consultation for 1 patient, but it was high during the second consultation..

**Of the remaining 114 patients:**

* **4** **(3.4%)** patients had **no change** in systolic blood pressure
* **66** **(56.4%)** patients had a **reduction** in systolic blood pressure
* **44** **(37.6%)** patients had an **increase** in systolic blood pressure

**This table shows the reduction in systolic blood pressure.**

|  |  |
| --- | --- |
| **Reduction in Systolic Blood Pressure** | **No. patients** |
| **1-10 mmHg** | 26 |
| **11-20 mmHg** | 11 |
| **21-30 mmHg** | 16 |
| **31-40 mmHg** | 7 |
| **41-50 mmHg** | 4 |
| **51-60 mmHg** | 1 |
| **126-130mmHg** | 1 |
| **Total** | **66** |

**56** **(48%)** of these patients had a reduction in both systolic and diastolic blood pressure. The table below shows the change in stage of hypertension from the initial to the follow up consultation for these patients.

|  |  |  |
| --- | --- | --- |
| **Stage of hypertension at initial consultation** | **Stage of hypertension at follow up consultation** | **No. Patients** |
| **Stages 3** | **Stage 3** | 1 |
| **Stage 2** | 2 |
| **Stage 1** | 1 |
| **<140/90mmHg** | 1 |
| **Stage 2** | **Stage 2** | 2 |
| **Stage 1** | 5 |
| **<140/90mmHg** | 14 |
| **Stage 1** | **Stage 1** | 4 |
| **<140/90mmHg** | 18 |
| **<140/90mmHg** | **<140/90mmHg** | 8 |
| **Total** | | **56** |

**41 (35%)** of patients had a reduction in blood pressure, classifying them at a lower stage of hypertension upon follow up.

The greatest reduction in blood pressure was seen for a patient who had a reading of 270/135mmHg at the baseline consultation. The PSP could not take an automated blood pressure reading and asked a colleague to take a manual reading. At the follow up consultation the patient’s blood pressure had reduced to 172/105mmHg. A more recent reading taken by the HCA in November 19 showed that the patient’s blood pressure had reduced further to 143/87mmHg. The patient was well known to the practice as not adhering to his medication. The PSP explained to the patient about the risk of not taking his medication and he became alarmed of the consequences of having poor blood pressure control and is now adherent.

PSPs documented interventions that had been actioned between the first and second consultation that contributed to a reduction in systolic blood pressure.

|  |  |
| --- | --- |
| **Reason for a reduction in systolic blood pressure** | **Number of patients** |
| **Patient now adherent to medication**  (reported as non-adherent during first consultation) | **21** **(32%)** |
| **Adherence improved** | **15** **(23%)** |
| **Dose of antihypertensive increased**  (mainly dose of amlodipine increased) | **12** **(18%)** |
| **Antihypertensive medication changed or new medicine added** | **6** **(9%)** |
| **Weight loss** | **4** **(6%)** |
| **Unknown** | **8** **(12%)** |
| **Total** | **66** |

Of the 66 patients where a reduction in systolic blood pressure was observed between the initial and follow up consultation, **36** **(55%)** had an improvement in adherence or became fully adherent to their antihypertensive medication. A further **18** **(27%)** patients had their dose of antihypertensive increased, changed or a new medication added.



**44 (37.6%) patients had an increase in systolic blood pressure as detailed in the table below.**

|  |  |
| --- | --- |
| **Increase in Systolic Blood Pressure** | **No. patients** |
| **1-10 mmHg** | 24 |
| **11-20 mmHg** | 12 |
| **21-30 mmHg** | 5 |
| **41-50 mmHg** | 1 |
| **51-60 mmHg** | 2 |
| **Total** | **44** |

**18** **(41%)** of the 44 patients who showed a raised systolic blood pressure also had a reduction in diastolic pressure.

Of the **44 patients** who had an increase in systolic blood pressure, **20** (45%) had a blood pressure in the normal range:

* 18 patients had a blood pressure in the normal range (<140/90mmHg) upon follow up.
* 2 patients HBPM results were fine.

Of the remaining **24 patients**, information is given in the table below to explain why their blood pressure may have increased or why it was difficult for the PSP to make an intervention.

|  |  |
| --- | --- |
| **Reason for increase in systolic blood pressure** | **Number of Patients** |
| **Adherence remains poor** | **13** **(54%)** |
| **Patient does not want to increase the dose or add any antihypertensive medicines** | **3** **(12.5)** |
| **Inaccurate reading as patients rushed to clinic or felt anxious** | **2** **(8.3)** |
| **PSP recommendation to initiate calcium channel blocker not actioned** | **2** **(8.3)** |
| **Patient referred by PSP to GP** **due to low pulse and feeling dizzy** (patient was investigated and was diagnosed with heart block). | **1 (4.2)** |
| **Complex patient** (Cushing’s Syndrome) | **1** **(4.2)** |
| **Could not afford medicines** | **1** **(4.2)** |
| **Difficulty communicating with patient** | **1** (**4.2)** |
| **Total** | **24** |

54% of patients, whose systolic blood pressure had increased and was classed as stage 1 or above, remained non-adherent to their medication.

**Lifestyle and diet**

During the initial consultation PSPs asked each patient about their diet, levels of exercise and lifestyle including smoking and alcohol consumption. Weight was not recorded during the follow up consultation as it was thought there was insufficient time to observe any weight loss between the two consultations. However PSPs did receive some feedback from patients who had modified their lifestyle, as detailed in the table below.

|  |  |  |
| --- | --- | --- |
| **Lifestyle recommendations actioned** | **Number of patients** | **Additional Information** |
| Increased physical activity | 5 |  |
| Motivated to lose weight | 3 |  |
| Referred to gym class | 2 | One patient was blind |
| Eating more healthily | 5 |  |
| Reduced alcohol consumption | 2 |  |
| Reduced smoking | 1 |  |
| Lost weight | 4 | One patient lost 7.5kg |
| **Total** | **22** |  |



Diet and lifestyle measures are an important factor to consider in this group of patients. The baseline consultation showed that 91% of patients were either overweight or obese which is a contributory factor to high blood pressure and the risk of developing cardiovascular events.

Further work needs to be done to explore the best approach to educate patients about diet and lifestyle. Some were engaged and wanted to change their diet and lose weight, but require further support and motivation to achieve this.

**Discussion and Conclusion**

**253** patients were reviewed at the baseline consultation. **136** patients were not followed up due to various reasons including having already been followed up by another healthcare professional, not attending the arranged appointment or having a normal blood pressure reading during the initial consultation and not requiring a follow up. **62** patients had a blood pressure reading taken by another healthcare professional after the initial consultation and **44** patients showed a reduction in systolic blood pressure. However we do not know which interventions had been followed through from the baseline consultation and whether there had been any improvements in adherence. This data shows that the baseline consultation alone may have had an impact on reducing systolic blood pressure.

**117** **(46%)** patients were seen for a follow up consultation. Data from the follow up review has demonstrated that using pharmacist led consultations to review hypertensive patients can lead to an improvement in blood pressure control. One of the main reasons leading to a reduction in systolic pressure was an improvement in adherence to antihypertensive medication. Pharmacists discussed adherence with each patient, identifying reasons why patients were not taking their medicines as prescribed and discussed the importance of blood pressure control on health outcomes. The second main reason leading to a reduction in systolic pressure was due to PSPs reviewing and making changes to the patient’s antihypertensive medication by uptitrating the dose or adding in or switching to another agent.

The data showed that systolic blood pressure increased in 44 patients. **20** (**45%)** of these patients had a blood pressure that remained in the normal range (<140/90mmHg). Of the other 24 patients, 13 were still not adhering to their medication and 3 resisted making any further changes to their medication. There were multiple reasons for non-adherence including patients forgetting to take their medicines e.g. due to irregular patterns of work and patients not believing that their medicines were working and therefore not feeling motivated to take them. This data highlights the importance of having regular discussions on adherence during hypertension consultations and the benefit that a pharmacist can bring in improving adherence to medication.

**Recommendations for future work**

* Evaluate the impact of including regular adherence checks in hypertension clinic consultations run by practice pharmacists and other healthcare professionals. Involve community pharmacists to work with practices to support adherence checks.
* Undertake another hypertension review project to include all patient groups with uncontrolled blood pressure.
* Undertake a qualitative patient survey to gain an insight into the patient’s perspective about their condition, treatment and value of the consultation.
* Follow up those patients who did not attend a hypertension consultation and identify the best method to encourage and motivate patients to attend pharmacist led consultations.
* Trial group consultations for hypertensive patients with uncontrolled blood pressure who are resistant to taking medication. This approach could be used to target adherence and help to motivate patients to lose weight, eat healthily, reduce alcohol consumption and promote smoking cessation.
* Follow up patients records in 6-12 months for those patients who attended both consultations to assess if reductions in blood pressure were maintained.