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Variability of Blood Pressure

There has been recent publicity about the importance of variability in blood pressure, prompted by recent publications in the Lancet (The Lancet, [Volume 375, Issue 9718](#), Pages 895 – 905 & 906 - 915, 13 March 2010). **The British Hypertension Society** issues the following statement:

Blood pressure is measured as the level of pressure when the heart is contracting (systolic blood pressure) and when the heart is relaxed and filling with blood (diastolic blood pressure). These pressure levels change continually as part of everyday life. A longer series of papers published in the Lancet on 12th March 2010 indicate that blood pressure variability is an important factor in predicting stroke and coronary disease and that certain blood pressure medications may reduce this variability better than others.

The British Hypertension Society Guidelines (1) recommend that the diagnosis and treatment of hypertension should be based on an average of at least two readings after 5 minutes at rest in the seated position. We recommend that those with highest blood pressures should be treated after a series of readings over two to four weeks and that for those with more mildly elevated blood pressure a series of readings should be used to determine treatment. Our current guidance suggests that patients should be treated as soon as the diagnosis is confirmed but they are less prescriptive about the timelines to achieve control and public health data suggest that achieving blood pressure targets remains challenging.

The average clinic blood pressure is a reliable indicator of risk that has been used in the majority of trials that have demonstrated the effectiveness of treatment in preventing stroke and heart attack. This approach fits with the graded and continuous effect of blood pressure level on the risk of heart attack and stroke. The impact of variable blood pressure on risk has been described before but this recent series of articles in the Lancet extends the case for examining whether greater attention should be paid to blood pressure variability in the management of patients.

The tools at hand include reliable home blood pressure devices and 24 hour ambulatory monitors, which providing the instructions are followed, empower patients and their carers to record blood pressure in more detail. **However, we want to emphasise that everybody's blood pressure is variable and patients should not be alarmed by this. Further work is needed to define what is an acceptable level of variability and what might be considered extreme and thus worthy of further attention.**

The reports on blood pressure variability also highlighted that some drugs used to lower blood pressure might be better than others at reducing this variability. The BHS and NICE Guidance of 2006 (2) acknowledged that trial evidence demonstrated that not all drugs used to lower blood pressure are the same. This led to the now widely used 'ACD' algorithm which prioritised agents that block the renin-angiotensin system, calcium channel blockers and diuretics as the initial steps to treat patients and placed beta blockers alongside alpha blockers for use at a later stage in treatment. Where possible the use of longer-acting therapeutic agents is recommended.

The NICE Guidance for treating high blood pressure is now under routine review which offers an opportunity to consider these new data on blood pressure variability alongside other new evidence that may help to further reduce stroke and heart attack. **For the present we recommend patients and carers aim to achieve the best possible control with blood pressures by following existing BHS and NICE treatment guidance which already prioritises the most effective medications.**

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