

## **My patient has a lot of variability in his blood pressure measurements? Should I be worried? What can I do which may be better?**

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### **Why is this important?**

Hypertension is a strong risk factor for stroke. In literature most work on hypertension has been done targeting either the Systolic blood pressure, Mean blood pressure or Pulse pressure but the ideal value which best measures the effect of anti-hypertensive drugs and predicts outcome in terms of complications and mortality has not been identified yet. Two international trials, ASCOT-BPLA and MRC, have been analyzed by investigators who have defined that blood pressure variability when measured is able to predict the outcome and have shown that "beta blockers" are showing a negative effect on stroke risk by affecting blood pressure variability and that Calcium channel blockers may in fact be better as they have shown to decrease the stroke risk in this sub analysis by decreasing inpatient variability.

ASCOT-BPLA compares amlodipine based regimens with atenolol based regimens in patients with hypertension and other vascular risk factors. MRC trial compares the effect of atenolol based and diuretic based regimens with versus placebo in hypertensive patients

### **Who were the participants?**

ASCOT-BPLA 19257 patients were included in the study over a period of approximately 5 years and the study was halted early because of all cause mortality reduction benefit the

risk of stroke. Ages were between 40 and 79 years (mean 63 yrs) with 77% males. MRC 4396 hypertensive patients between the ages of 65-74 years were included in the study.

### **What were the outcomes?**

ASCOT-BPLA Greater blood pressure reductions seen with amlodipine than atenolol attributable to decrease in blood pressure variability and leading to a reduction in all cause mortality and stroke risk. Amlodipine was able to reduce the mean Systolic blood pressure more than atenolol ( $p < 0.0001$ ) with lesser visit to visit variation ( $p < 0.0001$ ) and greater decrease in stroke risk than atenolol.

MRC Systolic blood pressure and all measures of within individual variation of blood pressure were higher in atenolol group compared with both the placebo group and the placebo group and diuretic group ( $p < 0.0001$ ). There was no effect on stroke risk in the first 2-3 years of the study although the early risk of stroke was reduced substantially in groups assigned to diuretics.

### **What were the conclusions?**

The study shows that effects of specific antihypertensive drug classes on within individual variability of blood pressure can explain the differences in clinical efficacy consistent with findings in other reviews of published data. Stabilization of blood pressure is more

important and the new target for drug development.

### **What does this mean for clinicians practicing in Pakistan?**

Hypertension is presently one in four Pakistani persons over the age of 45. Control of Hypertension reduces all-cause mortality, stroke, and MI and end stage renal disease. Besides noting an absolute reduction in blood pressure, we as clinicians should be looking for variability in individual blood pressure and giving medications to reduce the same. Spreading out regimens, looking at sustained and longer acting agents and asking patients to provide more intense reading records may be a way forward supported by the current evidence.

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responsibility of the authors and does not necessarily represent the official views of the Fogarty International Center or the National Institutes of Health.

### **Recommended Reading**

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