

The Role of Hypertension in Stroke

**Satellite Conference and Live Webcast
Monday, May 21, 2012
2:00 – 4:00 p.m. Central Time**

**Produced by the Alabama Department of Public Health
Video Communications and Distance Learning Division**

Faculty

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Learning Objectives

- **What is a stroke?**
- **What is blood pressure?**
- **What is high blood pressure?**
- **How can treating hypertension reduce the risk of stroke?**

Stroke

- **Rapidly developing signs of focal or global disturbance lasting 24 hours or longer, or leading to death with no apparent cause other than of vascular origin**
- **3rd highest cause of death worldwide**
- **4th leading cause of death in US**
- **Demands 4.4% of NHS expenditure**

Stroke

- **Every 40 seconds, someone in the U.S. dies of a stroke**
- **800,000 deaths per year from CV disease and stroke**
- **133,000 deaths from stroke**
- **The leading cause of disability**

Types of Stroke

- **Ischemic Stroke**
 - **Blood flow to the brain is blocked by blood clots or fatty deposits**
 - **~85% of all strokes**

Types of Stroke

- **Hemorrhagic Stroke**
 - Occurs when a blood vessel bursts in the brain
 - Blood then accumulates and compresses the surrounding brain tissue

What Is Blood Pressure?

- The amount of force that blood exerts on the walls of blood vessels as it travels through the circulatory system

Hypertension

- Term used for high blood pressure
- Defined as the level of blood pressure where the benefits of treatment outweigh the side effects
- Consistent readings at or above 140/90 is recognized as hypertension
- It is a target for primary and secondary prevention of stroke

Hypertension

- Systolic and diastolic pressures independently predict stroke
- The risk rises sharply and continuously, without threshold!
- Risk of stroke begins to increase at blood pressure readings higher than 115/75 millimeters of mercury (mmHg)

Blood Pressure Classification

BP Classification	SBP mmHg		DBP mmHg
Normal	<120	and	<80
Prehypertension	120-139	or	80-89
Stage 1 Hypertension	140-159	or	90-99
Stage 2 Hypertension	≥160	or	≥100

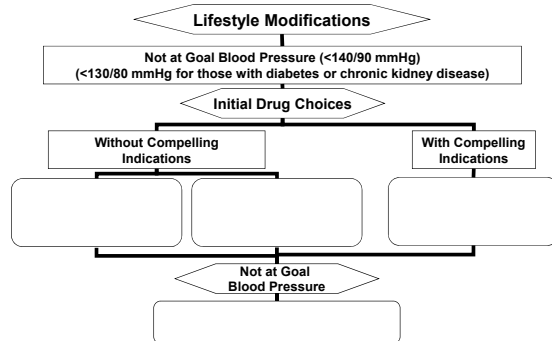
CVD Risk

- HTN prevalence ~ 50 million people in the United States
- The BP relationship to risk of CVD is continuous, consistent, and independent of other risk factors
- Each increment of 20/10 mmHg doubles the risk of CVD across the entire BP range starting from 115/75 mmHg

CVD Risk

- Pre-hypertension signals the need for increased education to reduce BP in order to prevent hypertension

Algorithm for Treatment of Hypertension



Goals of Therapy

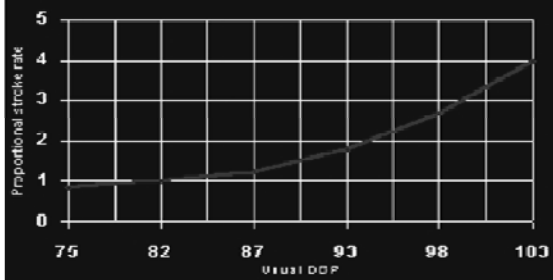
- Reduce CVD and renal morbidity and mortality
- Treat to BP <140/90 mmHg or BP <130/80 mmHg in patients with diabetes or chronic kidney disease
- Achieve SBP goal especially in persons >50 years of age

Hypertension

- REMEMBER that high blood pressure is a MODIFIABLE RISK FACTOR

Blood Pressure

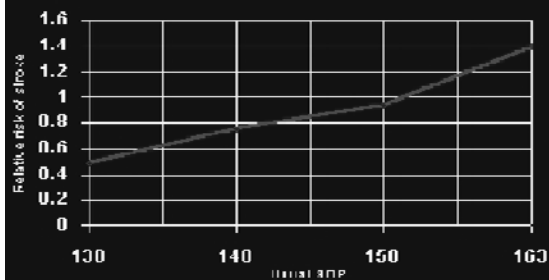
Stroke risk by usual DBP



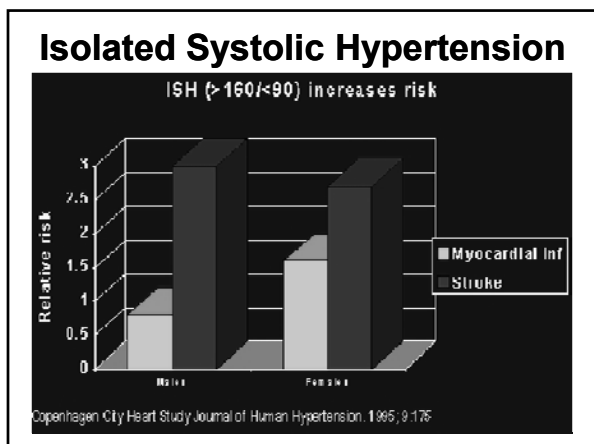
Lancet 1995; 346:1647-53

Blood Pressure

Secondary stroke risk by usual SBP



Fudgers A, et al. BMJ 1996; 313: 147



Lifestyle Modification

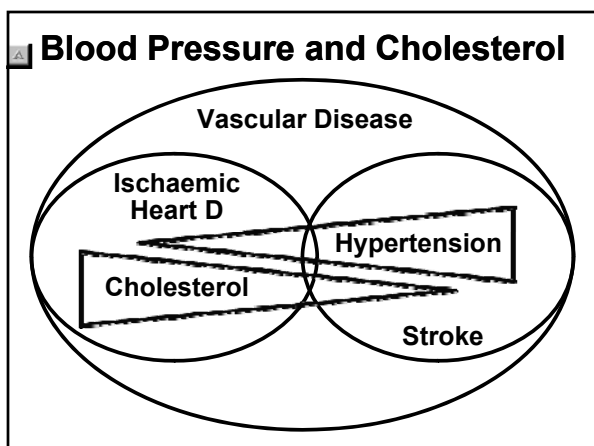
Modification	Approximate SBP reduction (range)
Weight reduction	5-20 mmHg/10kg weight loss
Adopt DASH eating plan	8-14 mmHg
Dietary sodium reduction	2-8 mmHg
Physical activity	4-9 mmHg
Moderation of alcohol consumption	2-4 mmHg

Classification and Management of BP for Adults

BP classification	SBP* mmHg	DBP* mmHg	Lifestyle modification	Initial drug therapy	
				Without compelling indication	With compelling indications
Normal	<120	and <80	Encourage		
Prehypertension	120-139	or 80-89	Yes	No antihypertensive drug indicated.	Drug(s) for compelling indications. [†]
Stage 1 Hypertension	140-159	or 90-99	Yes	Thiazide-type diuretics for most. May consider ACEI, ARB, BB, CCB, or combination.	Drug(s) for the compelling indications. [†]
Stage 2 Hypertension	≥160	or ≥100	Yes	Two-drug combination for most [‡] (usually thiazide-type diuretic and ACEI or ARB or BB or CCB).	Other antihypertensive drugs (diuretics, ACEI, ARB, BB, CCB) as needed.

*Treatment determined by highest BP category.
[†]Initial combined therapy should be used cautiously in those at risk for orthostatic hypotension.
[‡]Treat patients with chronic kidney disease or diabetes to BP goal of <130/80 mmHg.

- ### Hypertension and Lifestyle
- **NEVER FORGET!!**
 - **Decrease salt, saturated fats**
 - **Alcohol**
 - Remember the J curve
 - **Lose weight**
 - **Regular cardiovascular exercise**
 - **STOP SMOKING!**



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