

# HTN – Case Study

MK is a 51-year-old Caucasian male who is 6 feet tall and weighs 275 pounds (BMI 37.3) with an abnormal distribution of weight around his abdomen. He does not regularly exercise, does not like to cook, and eats fast food three to five times during the week. He has smoked one pack per day since the age of 20 (31 pack years). He has a history of hyperlipidemia, but is unable to afford his medication (atorvastatin), and has not taken since he was diagnosed 5 years ago. He has no current diagnosed medical problems. He became concerned and came to the emergency department because he is more easily fatigued and has had a headache the past three days that has not improved. He owns his own auto mechanic business. He has no health insurance. His father had hypertension and died of a myocardial infarction (MI) at the age of 50.

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<b>Current Assessment:</b>	
GENERAL APPEARANCE:	Appears uncomfortable, body tense with occasional grimacing
RESP:	Breath sounds clear with equal aeration bilaterally ant/post, non-labored respiratory effort
CARDIAC:	Pink, warm and dry, no edema, heart sounds regular–S1S2, pulses bounding, equal with palpation at radial/pedal/post-tibial landmarks
NEURO:	Alert and oriented to person, place, time, and situation (x4)
GI:	Abdomen soft/non-tender, bowel sounds audible per auscultation in all 4 quadrants
GU:	Voiding without difficulty, urine clear/yellow
SKIN:	Skin integrity intact, skin turgor elastic with no tenting

<b>Current VS:</b>	<b>P-Q-R-S-T Pain Assessment (5th VS):</b>	
<b>T:</b> 98.9 F/37.2 C (oral)	<b>Provoking/Palliative:</b>	Nothing/Nothing
<b>P:</b> 88 (regular)	<b>Quality:</b>	Ache
<b>R:</b> 20	<b>Region/Radiation:</b>	Global head ache (HA)
<b>BP:</b> 220/118	<b>Severity:</b>	8/10
<b>O2 sat:</b> 95% room air	<b>Timing:</b>	Continuous

Chest X-ray: enlarged cardiac silhouette

CBC: normal

Metabolic labs: high blood and urine glucose, poor kidney function

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What are some major factors that play a part in determining blood pressure?

What formula defines blood pressure?

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Arteriole tone, heart contractility, blood volume

What formula defines blood pressure?

Systemic vascular resistance X cardiac output = BP

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What are some of MK's risk factors for Hypertension?

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Obesity/abdominal fat (metabolic syndrome/diabetes)

Sedentary lifestyle/poor diet

High stress job

Family history

Tobacco use

Hyperlipidemia – exacerbates effects of HTN, not in itself a risk factor

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MK's HTN was verified over the next several weeks, and further workup revealed no identifiable cause for the HTN. Treatment was initiated for his HTN as well as his hyperlipidemia and diabetes. However, he had no health insurance and was therefore non-compliant with his medications because he "felt fine," so he stopped seeing his physician.

What type of HTN does MK have?

What potential manifestations of HTN does MK have?

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What type of HTN does MK have? Essential vs secondary

What potential manifestations of HTN does MK have? **Chronic kidney disease**



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Three years later, MK complained of a severe headache one morning at work, and several minutes later began to slur his speech, and lose function of his right arm and leg.

What is happening to MK?

What causes it?

What vascular changes in the brain are associated with it?

What other vascular changes are prevalent in HTN?

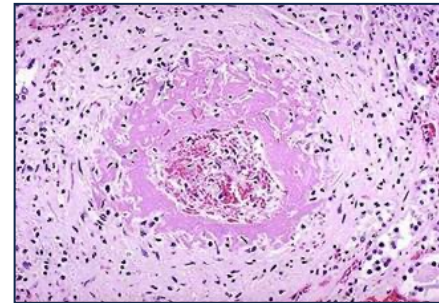
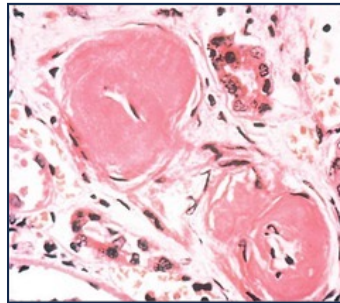
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What is happening to MK? **He's having a stroke**

What causes it? **Blood vessel rupture or blockage**

What vascular changes in the brain are associated with it? **Arteriolosclerosis and fibrinoid necrosis**



What other vascular changes are prevalent in HTN? **Atherosclerosis**