

Sleep Apnea and Stroke Risk : Sound the Alarm!



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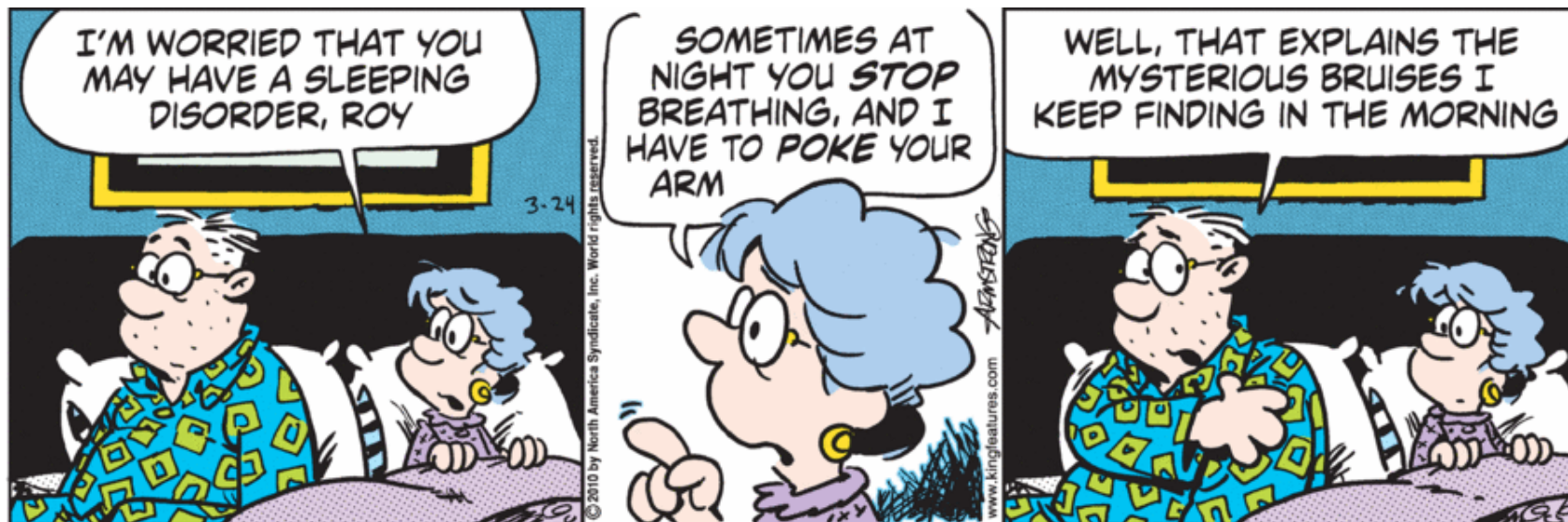


What will we learn today...

- What is sleep apnea?
- Types of sleep apnea and degrees of sleep apnea
- Symptoms of sleep apnea
- Causes and Risk factors
- Effect of sleep apnea on blood vessels in the brain and heart
- What can be done to treat it?
- Is it worth the trouble? Does treating it reduce your stroke risk?
- How can I get tested or get a sleep study scheduled?



First: Does this look familiar?



Let's Face Facts.....

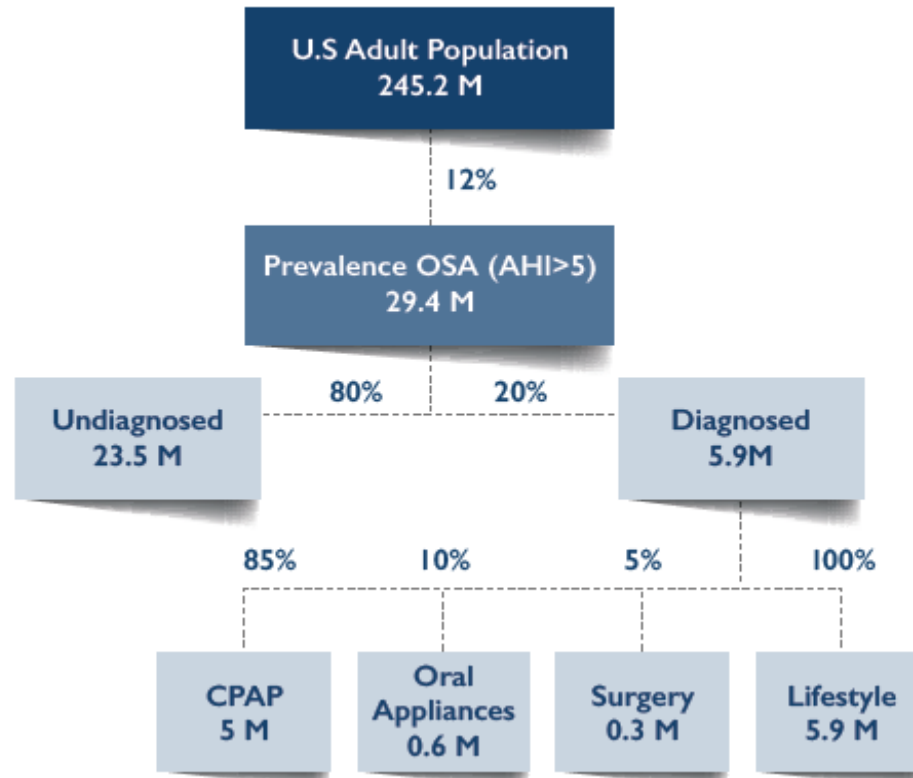


- ☐ 1 in 5 adults suffer from at least mild sleep apnea
- ☐ Sleep apnea affects **men** more than women
- ☐ 35% of people with high Blood Pressure have obstructive sleep apnea
- ☐ 17% of 50-70 year old men and 9% of 50-70 year old women have moderate to severe sleep apnea
- ☐ Undiagnosed sleep apnea has a huge economic cost and is linked to workplace accidents, MVAs, lost productivity and co-morbid diseases. 150 Billion \$ in 2015!



Is Sleep Apnea a Hidden Health Crisis?

Prevalence, Diagnosis and Treatment of OSA in the United States



YES!

From the American Academy of Sleep Medicine Report in 2016

What are some risk factors for developing sleep apnea?

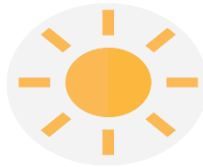
- ☐ Obesity- abdomen, and throat
- ☐ High Blood Pressure
- ☐ Narrow Airway – anatomy
- ☐ Smoking
- ☐ Chronic nasal congestion
- ☐ Diabetes
- ☐ Male sex
- ☐ Family history
- ☐ Asthma



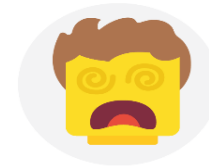
Symptoms of Sleep Apnea



Snoring



Excessive Daytime Sleepiness



Gasping or choking during sleep



Dry mouth or sore throat in the morning



Morning headache



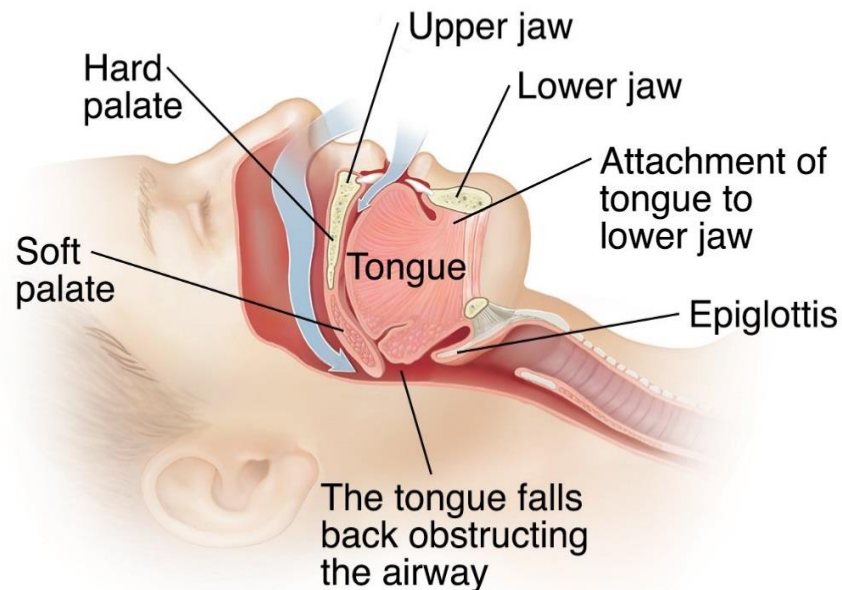
Witnessed pauses in breathing during sleep

Associated with other medical problems:
hypertension, diabetes, depression, insomnia

What is Sleep Apnea?

Obstructive Sleep Apnea

During sleep, gravity and muscle relaxation allows the tongue and surrounding soft tissues to fall back into the throat area, obstructing air flow.



1

Obstructive Sleep Apnea

Caused due to blocked airway because of soft tissue collapse at the back of the throat

2

Central Sleep Apnea

Failure of brain to send signal respiratory muscles due to unstable respiratory control center

Periods of interrupted or stopped breathing or very shallow respirations during sleep

Types and Degrees of SA

OSA- Disorder DIAGNOSIS Criteria:

Sleep study sonography reveals 5 or more obstructive respiratory events – 10 secs or more - (apneas, mixed apneas, hypopneas or RERAs) **per hour** of sleep.

With symptoms

Or 15 events without symptoms

Apnea Hypopnea Index (AHI)	
Severity	AHI per Hour
None/Minimal	< 5
Mild	5 -15
Moderate	16-30
Severe	> 30

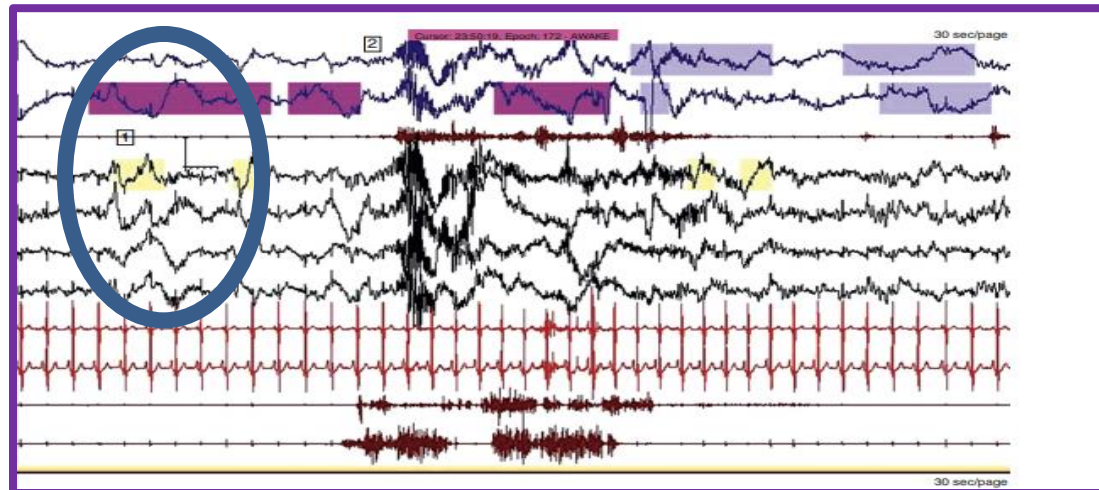


What happens during sleep for patients with apnea?

Brain has “auto regulation” which senses if not enough air is coming in and wakes the person up : **“AROUSAL”** of 30 seconds or less, patient does not remember them- may not be aware.

Multiple arousals lead to interrupted sleep and person does not reach restful phases of deep sleep for cell recovery

Transition from stage N2 sleep to wakefulness showing arousal:
Atlas of Sleep Medicine, Chap 3



What else happens in the body?



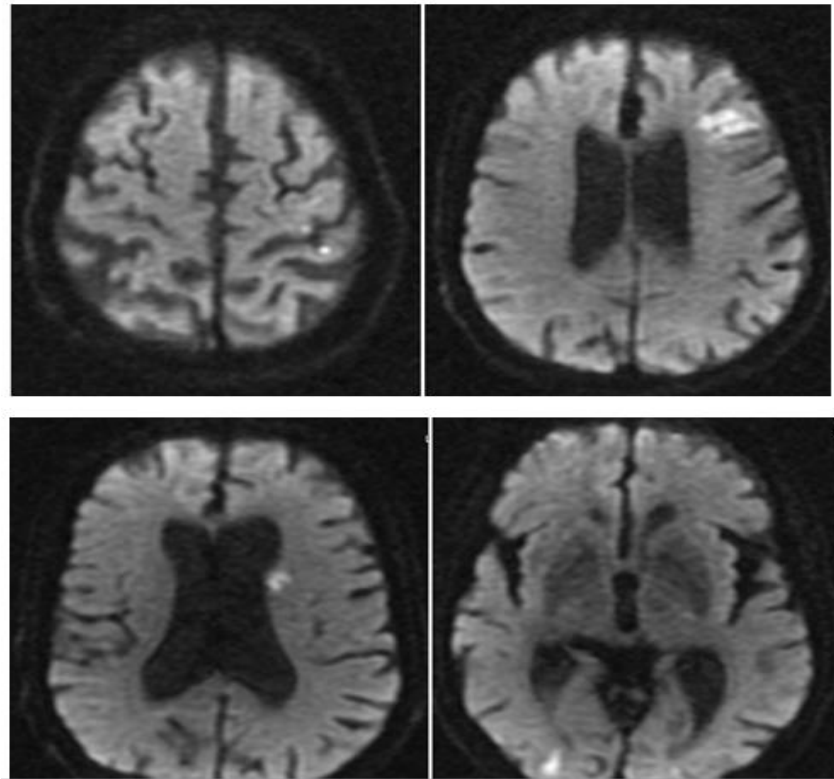
- Low oxygen levels in the blood cause problems everywhere but primarily in the heart and brain
- Low oxygen **raises the Blood Pressure**. Several studies have documented this BP raise with hypoxia. **High BP** is the biggest risk factor for stroke
- High BP raises the risk of developing Atrial Fibrillation which increases the risk of large strokes

What else happens in the body?

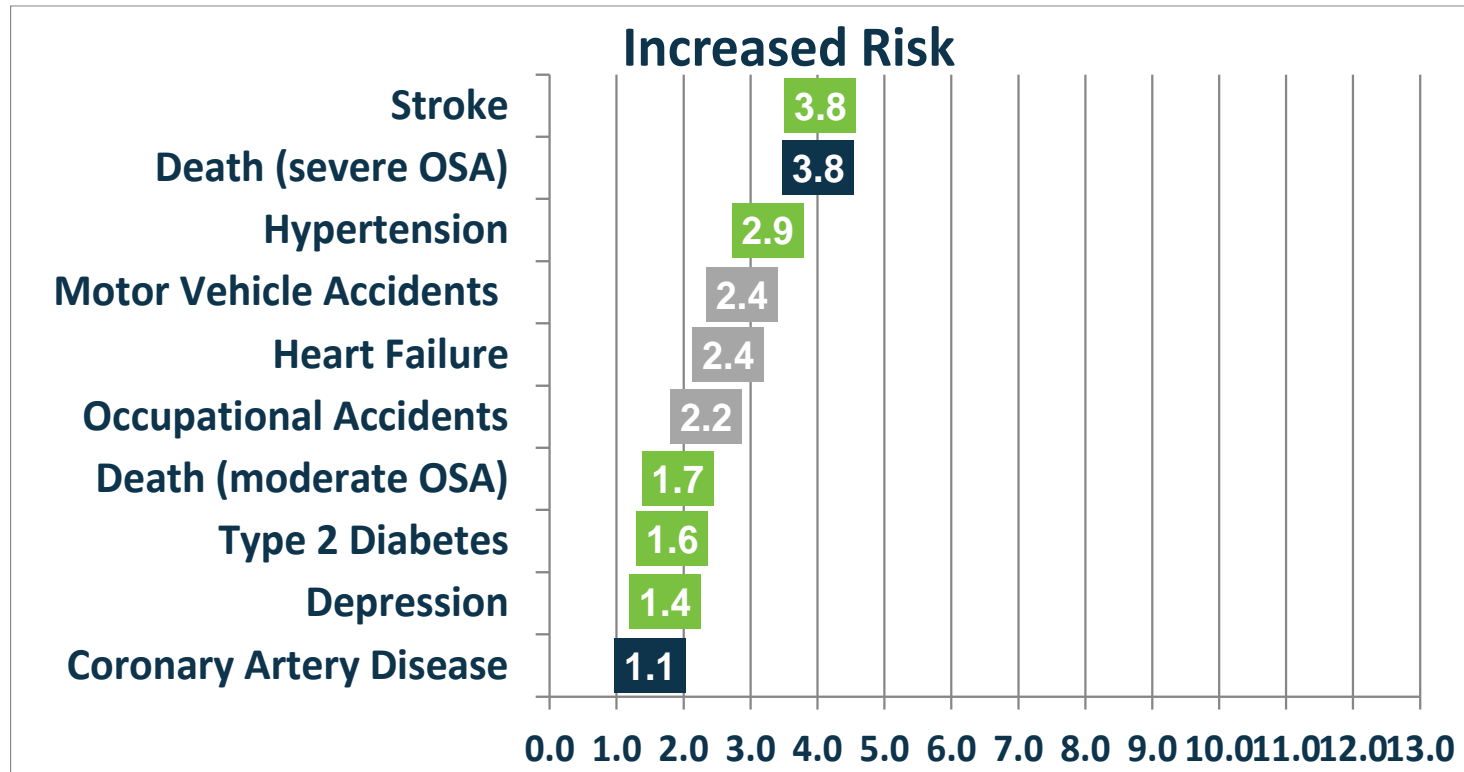
Hypoxia or lack of oxygen triggers the release of **inflammatory factors** in the blood making blood vessels and cells in general over time less reactive to the stress and pressure leading to overall damage.

Hypoxia

Sleep stroke and cardiovascular disease,
Culebras, A. 2013, pg 11.



Risk of Stroke vs other conditions with Sleep Apnea



From Dr. A. Culebras slides: The Many Faces of Sleep Apnea

Stroke and Sleep Apnea: Knowing you have it

- About 75% of patients hospitalized for stroke have sleep apnea, about 50% of these people did not know they have it or have the disorder under control
- Sleep disordered breathing- very common in stroke patients...
- Sleep studies should be considered in all stroke and TIA patients

Johnson KG et al. J Clin Sleep Med. 2010 15;6:131

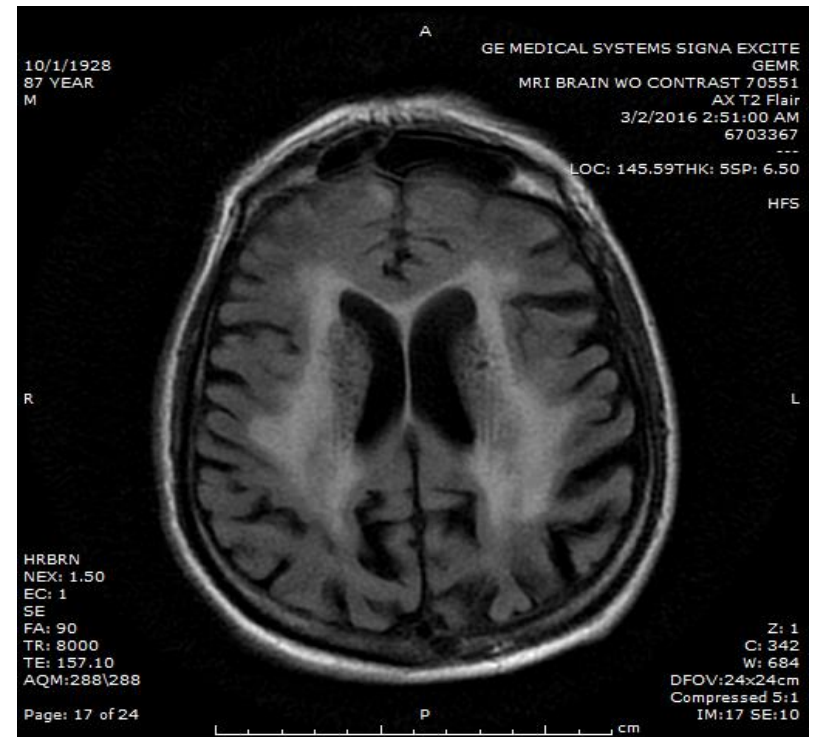
What about Women with Sleep Apnea and stroke risk?

- Younger women with sleep apnea have more strokes. (age 20-35)
- Chinese study released in 2014 showed that when stratified by age, the effects of sleep apnea on stroke risk decreased with age.

(Chang CC et al, Sleep Medicine 2014 15:410)

What are other possible long term effects of sleep apnea-if not treated?

- Over time - Cortical disconnection- core of the brain is not receiving messages as it should leads to difficulty walking, mental functions, incontinence of urine, poor memory or **Vascular Dementia**



What are some other complications from sleep apnea ?



Sleep Study: PSG What is it and how to prepare



- All night tests where technicians monitor brain waves, breathing, heart and muscle activity in a medical sleep center
- Avoid caffeine or alcohol 4 hours prior to the study
- Keep scalp dry and clean
- Loose comfortable clothing
- Sense of humor

How is sleep apnea treated?

- CPAP machines Positive Airway Pressure (PAP)
- Mouthpieces
- Surgery – upper airway hypoglossal nerve stimulation – used if mask is not an option for severe cases
- **Weight loss**
- Suggest first using the CPAP mask for short stints during the day while you read or watch TV to become comfortable with the mask
- Treat other nasal stuffiness or mouth issues
- Avoid alcohol before you sleep



CPAP options

- CPAP assistance program at sleepapnea.org
- Several choices of equipment
- Some download information
- Face mask, nasal pillows,
- Most important to use it - check insurance also





Is the SA treatment worth the trouble?

Research Says:

“ CPAP has shown to significantly reduce SBP at night in patients with sleep apnea and hard to control BP”

“ CPAP use is shown to delay initiation or slow progression of cognitive changes”

Patient Says:

Yes People who used to fall asleep at points in the day, at traffic lights etc, are report that it does not happen after CPAP use

Yes People report better productivity at jobs and more energy

Yes Partners are no longer disturbed!

Does SA impact recovery from stroke?

- Yes, especially patients with moderate to severe sleep apnea
- Poor memory
- Not motivated
- Rehab skills poor, much slower



Who should absolutely be screened for sleep apnea?

- Doctors and Nurses use the STOP BANG Scale to screen you in the hospital or clinic
- 1. Higher score = more at risk for apnea
- 2. Patients on 3 more medications for BP
- 3. African Americans

STOP-Bang Questionnaire

Please answer the following questions by checking "yes" or "no" for each one

	Yes	No
S noring (Do you snore loudly?)	<input type="checkbox"/>	<input type="checkbox"/>
T iredness (Do you often feel tired, fatigued, or sleepy during the daytime?)	<input type="checkbox"/>	<input type="checkbox"/>
O bserved Apnea (Has anyone observed that you stop breathing, or choke or gasp during your sleep?)	<input type="checkbox"/>	<input type="checkbox"/>
H igh Blood Pressure (Do you have or are you being treated for high blood pressure?)	<input type="checkbox"/>	<input type="checkbox"/>
B MI (Is your body mass index more than 35 kg per m ² ?)	<input type="checkbox"/>	<input type="checkbox"/>
A ge (Are you older than 50 years?)	<input type="checkbox"/>	<input type="checkbox"/>
N eck Circumference (Is your neck circumference greater than 40 cm [15.75 inches]?)	<input type="checkbox"/>	<input type="checkbox"/>
G ender (Are you male?)	<input type="checkbox"/>	<input type="checkbox"/>

Score 1 point for each positive response.

Scoring interpretation: 0 to 2 = low risk, 3 or 4 = intermediate risk, ≥ 5 = high risk.

Does Losing Weight Cure Sleep Apnea?

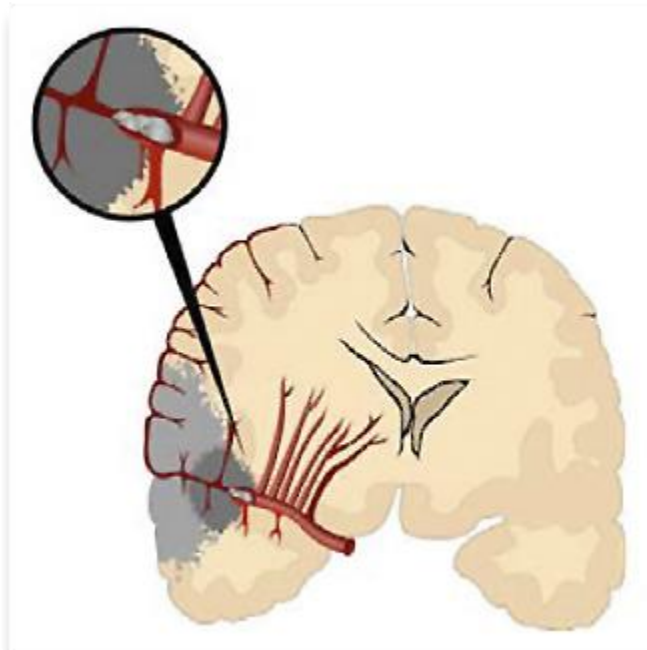
- **Yes and Yes-**
Reducing your Body mass index 25 or less has shown to **cure** apnea and reduce blood pressure
- Treat apnea first, as sleep apnea and not sleeping well will actually slow weight loss despite doing all other things right



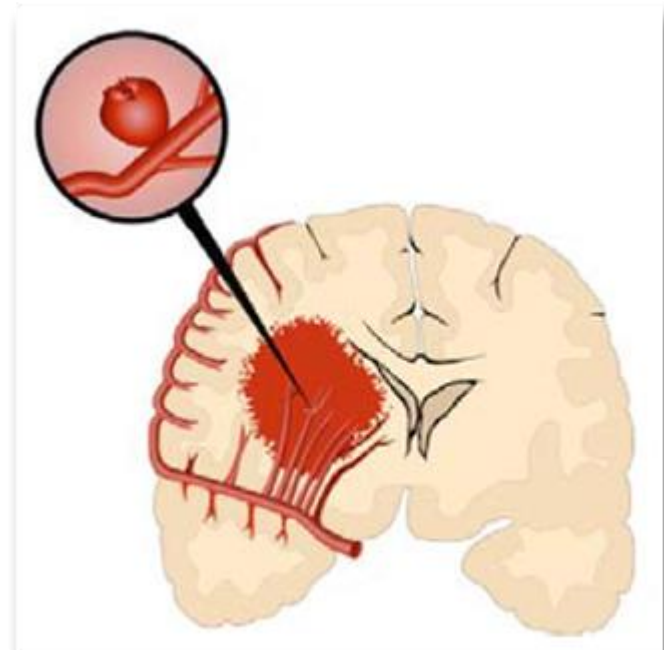
What kinds of Stroke?

An interruption of blood flow to the brain which leads to brain injury.

Ischemic= “blockage”: 85%



Hemorrhagic=“bleeding”: 15%



Common Signs of Stroke

- Sudden numbness or weakness, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing
- Sudden trouble walking or loss of balance
- Sudden, severe headache



FAST

SPOT A STROKE



Stroke Warning Signs and Symptoms

What Next? Panic?

- **NO!!! Call 911**
- Don't try to bring the person yourself
- EMS communicates with the hospital and can help if symptoms worsen
- Do not ignore the symptoms even if they go away!
- Think: when was Last Known Well or Normal ?



More Questions?

www.sleepassociation.org

Good online information

<http://www.upstate.edu/sleep-center/index.php>

Upstate Sleep Center –Camillus

References:

<https://www.health.harvard.edu/blog/pace-breathe-new-treatments-sleep-apnea-2016072710024> Pace to breathe- new treatments for sleep apnea

Sleep Apnea Presentation – Dr Antonio Culebras, Neurologist Upstate Medical University Hospital Syracuse, Director of Upstate Sleep Center, Healthlinks on Air presentation, September 2, 2018

<https://www.sleepassociation.org/sleep-disorders/sleep-apnea/sleep-apnea-screening-questionnaire-stop-bang/>

<https://www.heart.org/en/health-topics/consumer-healthcare/sleep-apnea-and-heart-disease-stroke>

The many and ugly faces of sleep apnea: Antonio Culebras, MD Neurologist presentation at RUSH conference slides, September 2018

Sleep Apnea: Residents Conference presentation slides, Antonio Culebras, MD Neurologist, March 2019.