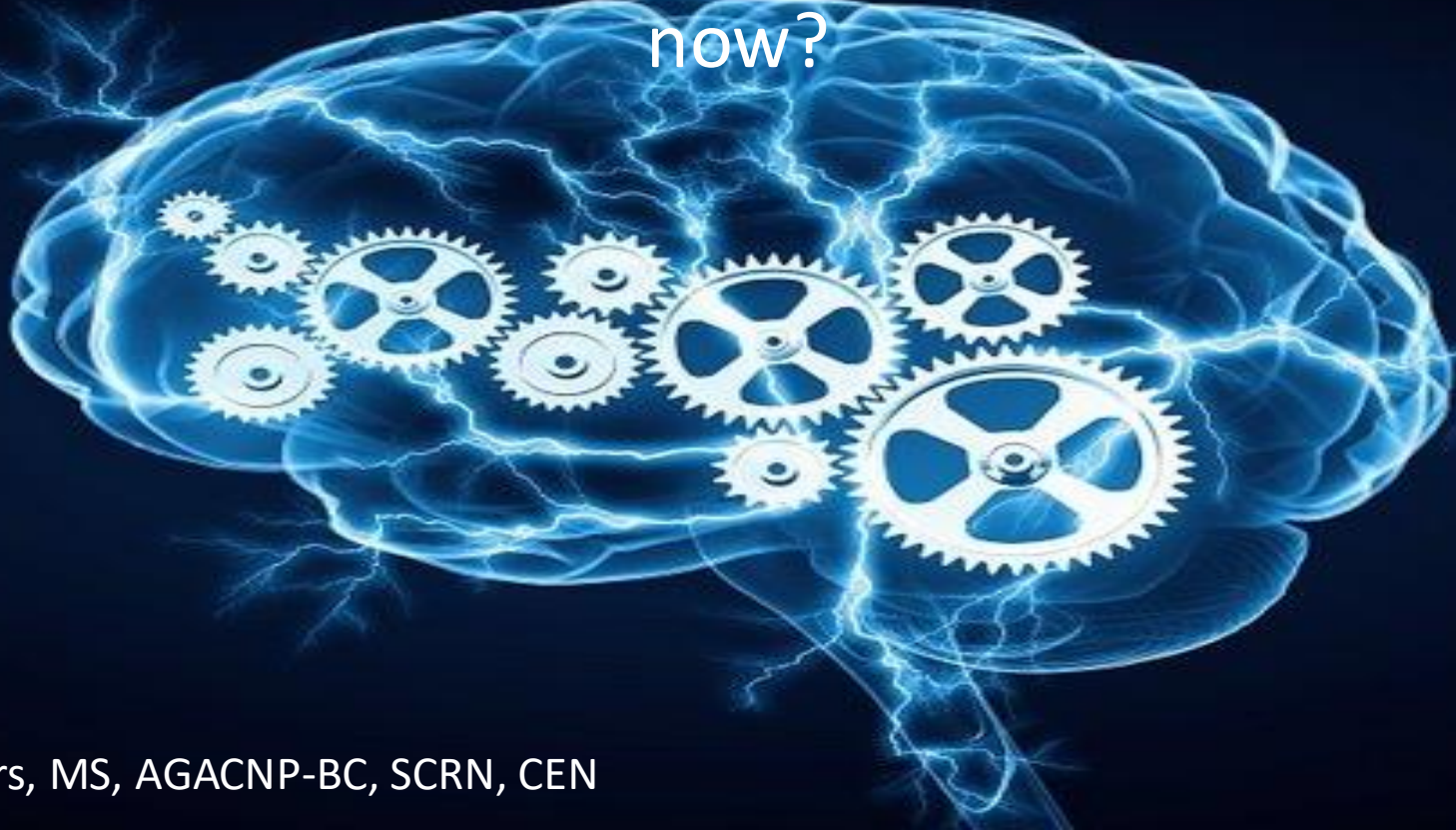


Small Vessel Disease and No Stroke: What now?



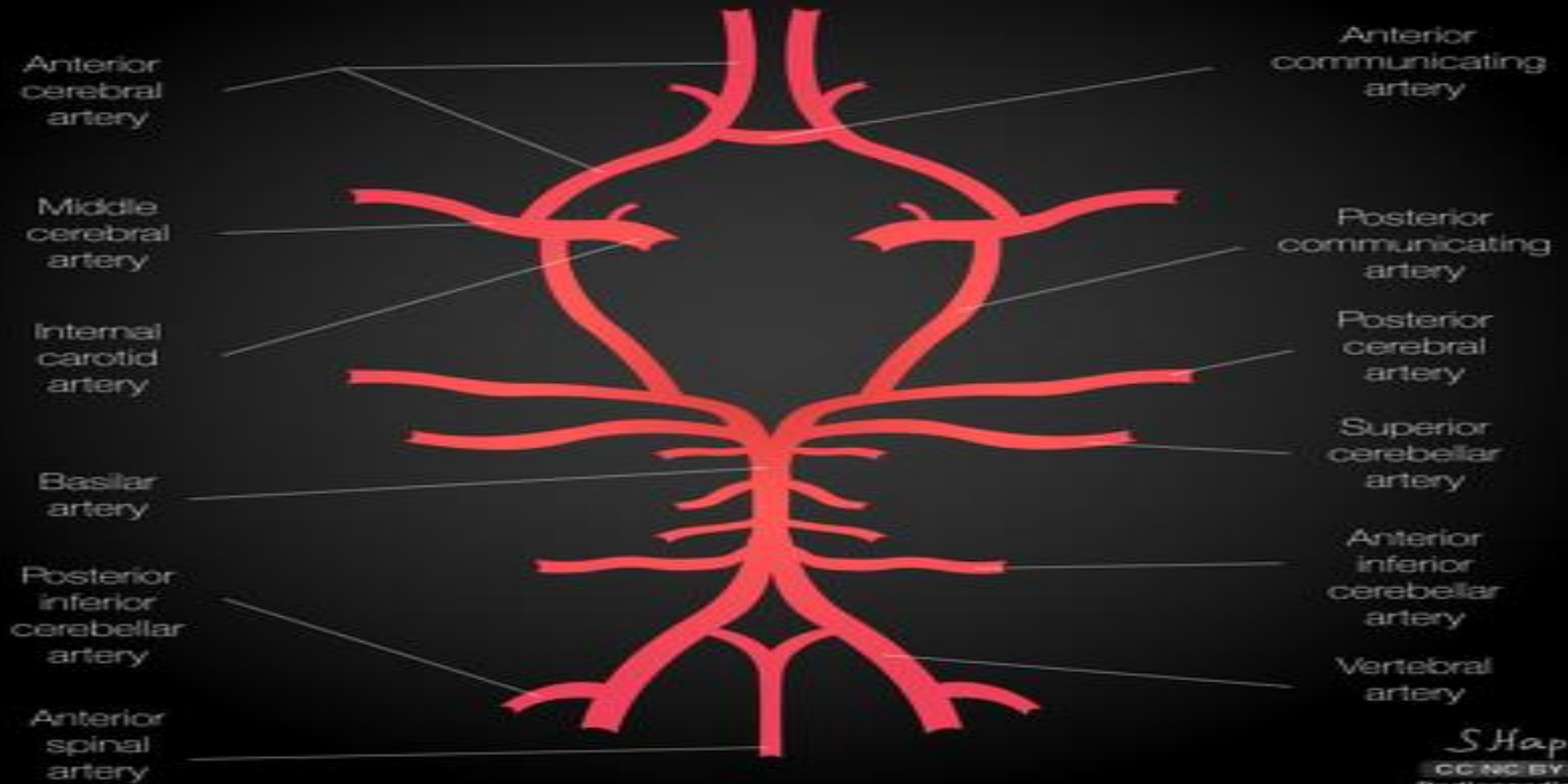
Liz Salyers, MS, AGACNP-BC, SCRNP, CEN

Objectives

At the end of this presentation, learners will:

1. Understand the definition of small vessel disease
2. Understand how small vessel disease plays a roll in other neurologic disease processes
3. Prevention and treatment of small vessel disease

Normal anatomy

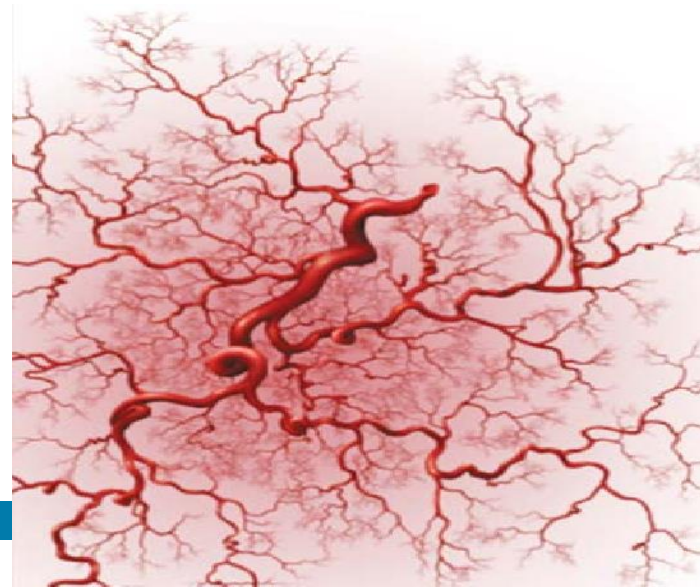


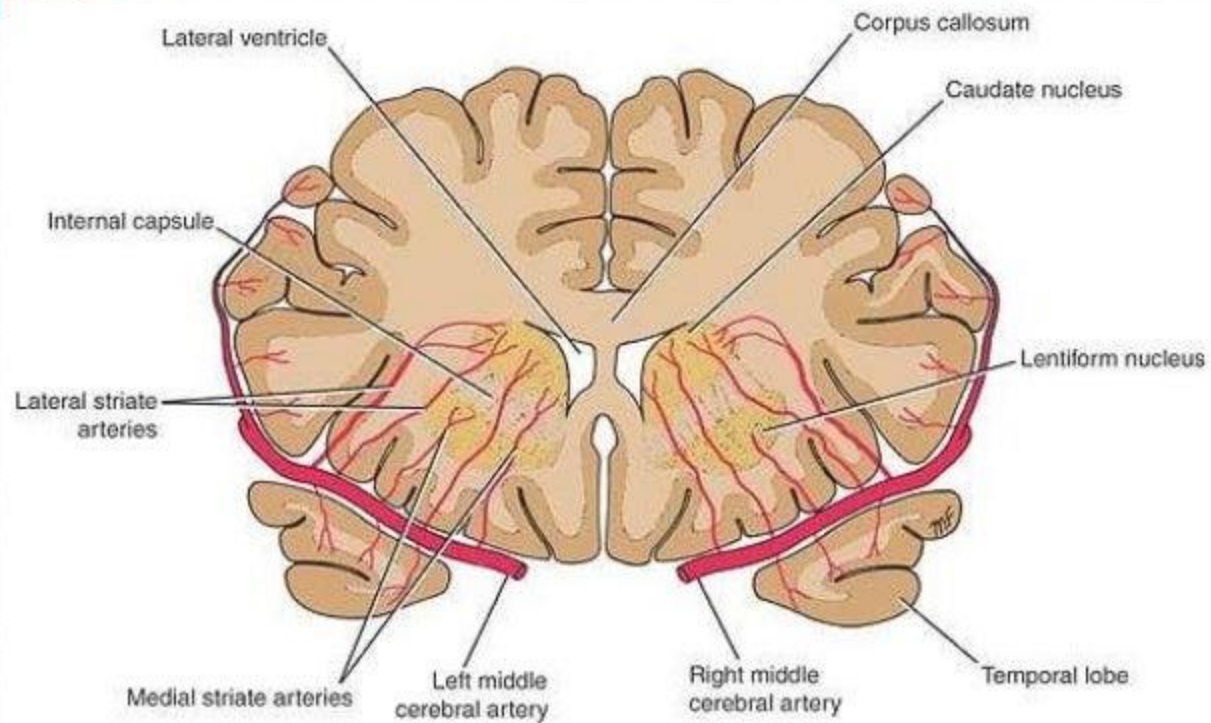
S Hapu
CC BY SA
Radiopaedia.org

What is small vessel disease (SVD)?

-Umbrella term to describe disease processes that impact the small arteries, arterioles, venules and capillaries in the brain (micro vessels).

Cerebral small vessel disease (CSVD)
Chronic microvascular ischemic disease
Small vessel ischemic disease
Periventricular white matter changes





SVD risk factors

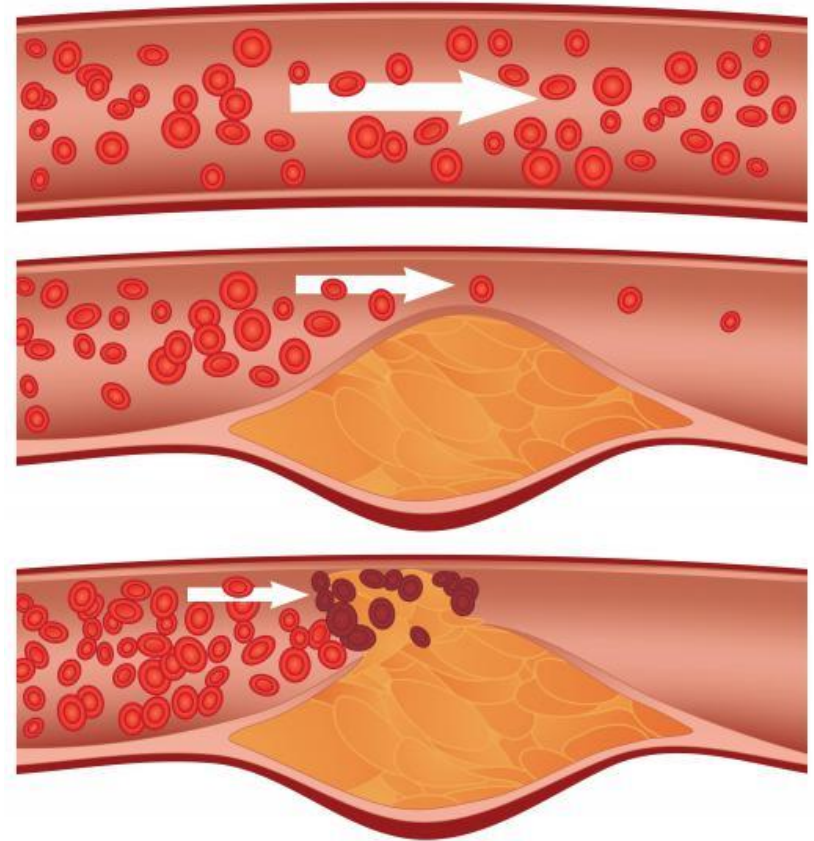
-disease of age

-2 major types:

- CAA –cerebral amyloid angiopathy
- Arteriosclerosis-hardening of arteries

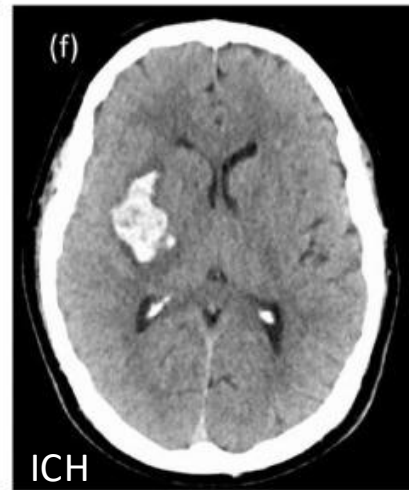
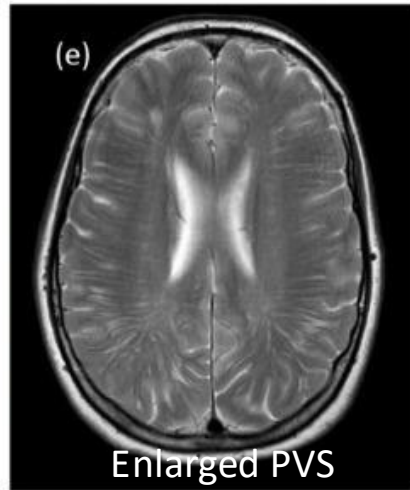
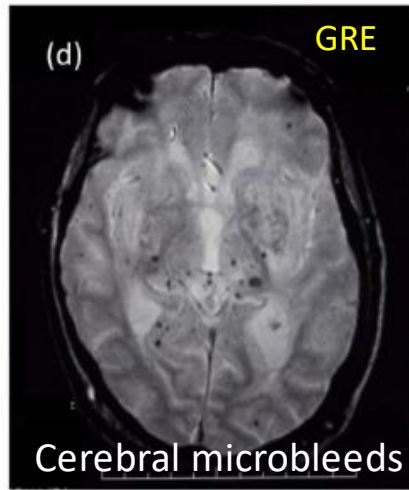
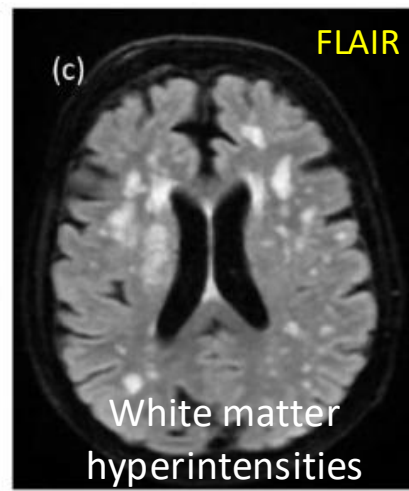
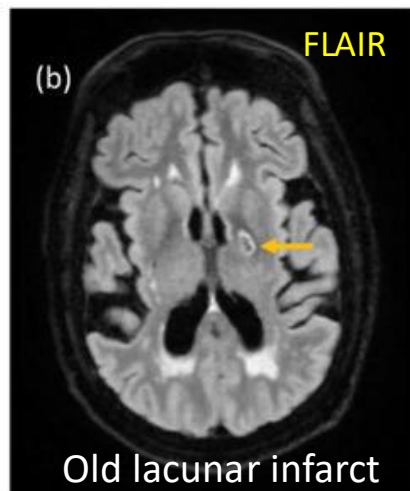
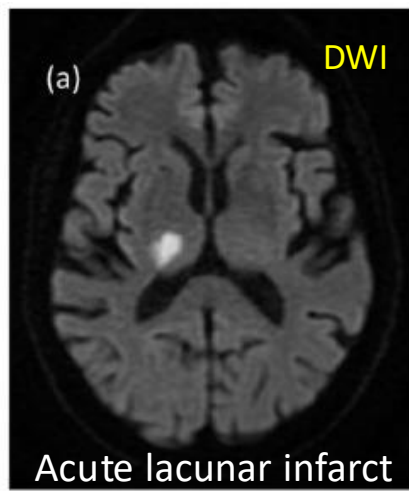
-Other risk factors:

- Smoking
- HTN
- DM2
- HLD
- CKD
- OSA
- Genetics



Neuroimaging

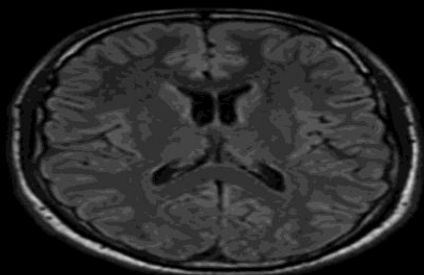
- white matter hyperintensities (WMH) of presumed vascular origin
- recent small subcortical infarcts
- Microbleeds
- superficial siderosis
- prominent perivascular spaces/brain atrophy
- microinfarcts
- lacunes



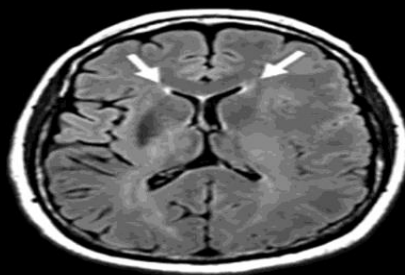
Yellow- MRI sequence used

Fazekas Scale of WMH Grading

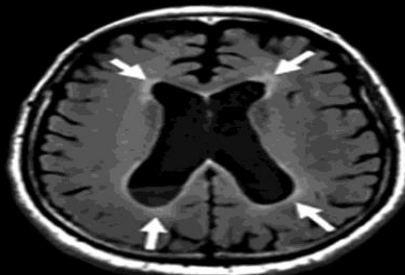
Periventricular



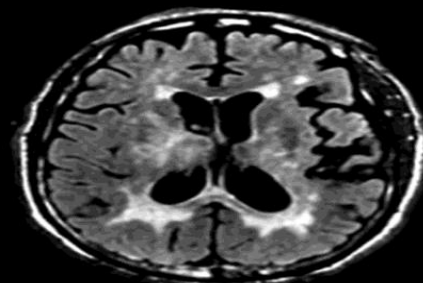
Grade 0
Absent



Grade 1
Caps/pencil-thin

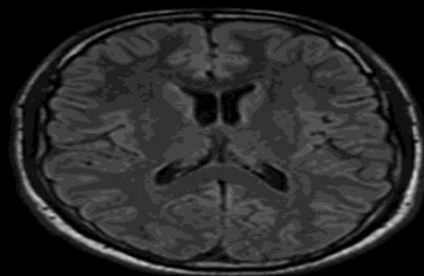


Grade 2
Smooth halo

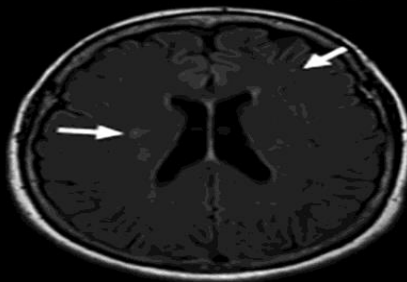


Grade 3
Irregular extending
to deep WM

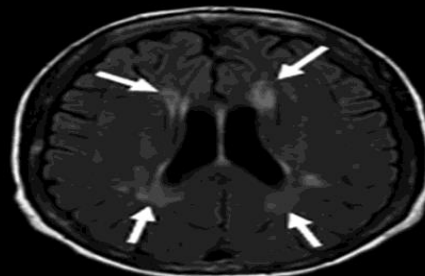
Deep



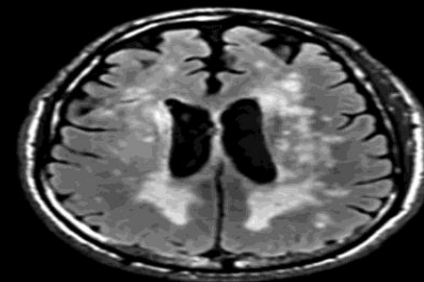
Grade 0
Absent



Grade 1
Punctate foci




Grade 2
Beginning
confluence foci



Grade 3
Large confluent
areas



“So, I’ve had
100s of strokes
before?”



“Brain Health”



normal



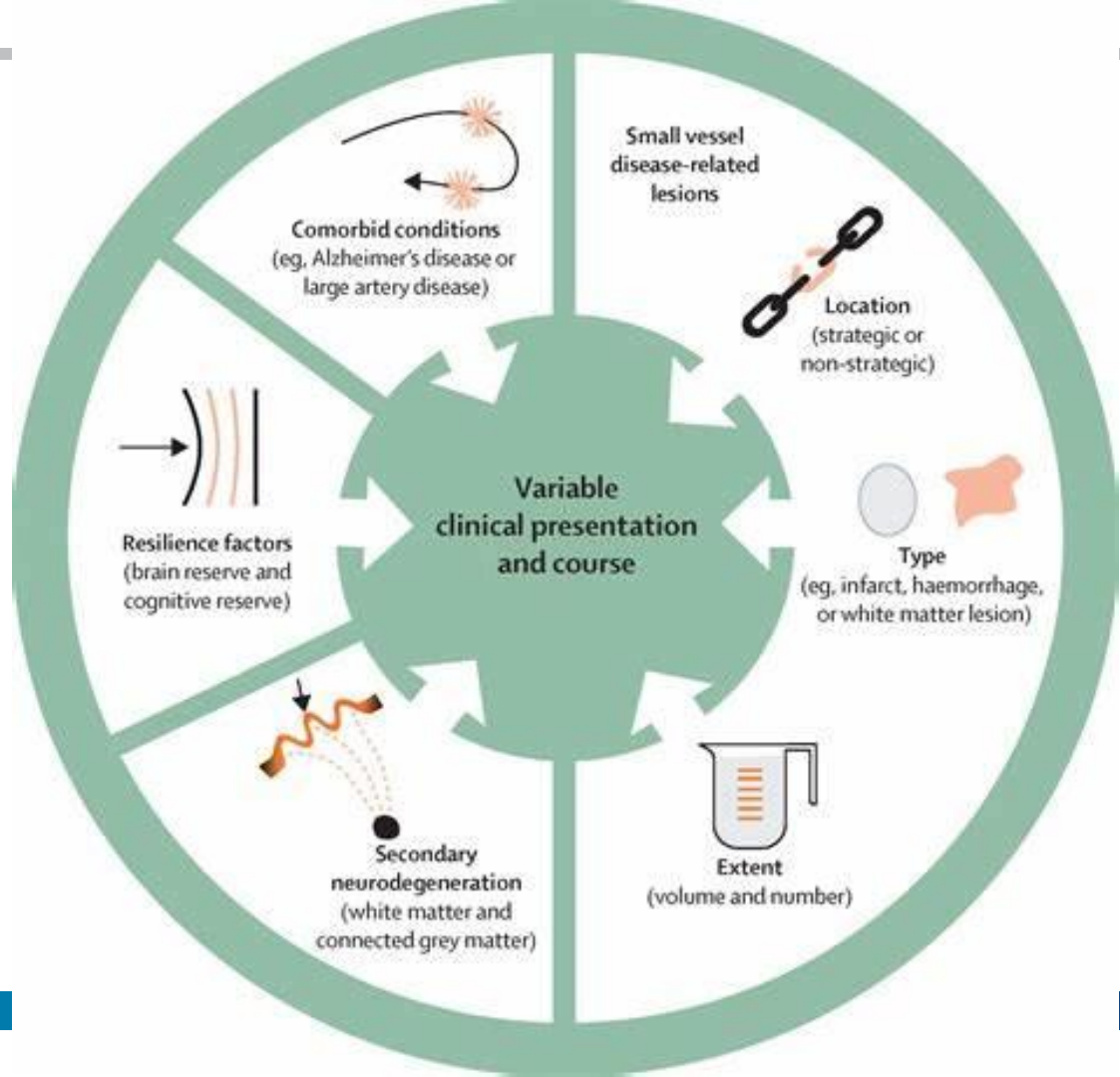
mild



moderate



severe



Complications of SVD: ICH & AIS

- Includes CAA but also non-amyloid SVD
- Causes MOST spontaneous ICH (important cause in young patients)
- Complicated by the fact that non-amyloid SVD also has increased risk of recurrent ischemic strokes- can complicate tx options
- Studies show SVD has increased risk of ischemic stroke over ICH

Treatment

Primary prevention

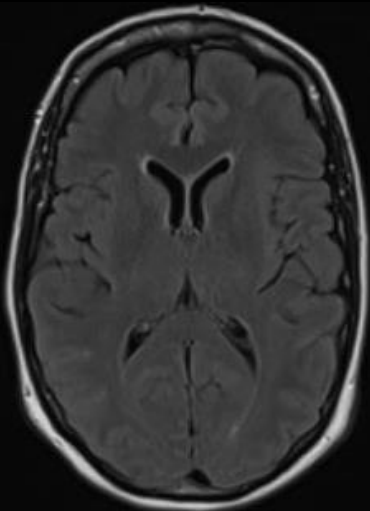
- Tobacco cessation
- Controlling vascular risk factors
 - HTN
 - HLD
 - DM

Secondary prevention

- Aspirin
- Patients with acute lacunar strokes follow acute ischemic stroke pathways

The Future

- More research to understand the pathophysiology
- Genetic studies
- Rodent model, minocycline administration Phase 2 trial currently
- Medications
- Need for large-scale randomized controlled trials



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TR:9000 TE:116

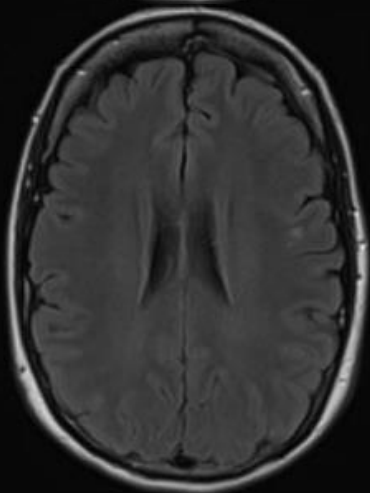
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10 cm

R

AX T2 FLAIR
MRI BRAIN WO CON
AWP42472

FOV: 230
HFS 256x256
TR:9000 TE:116

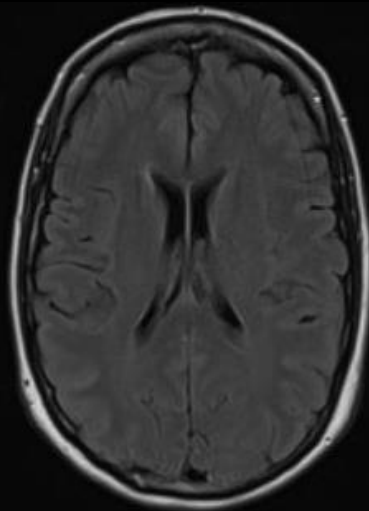


10 cm

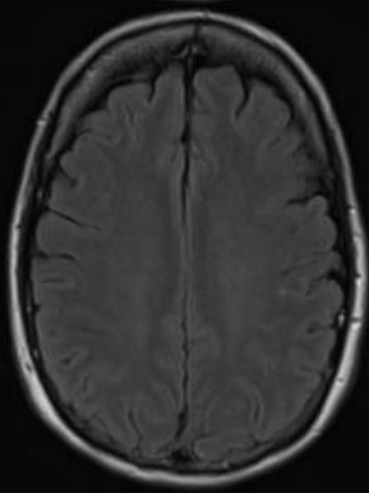
R

AX T2 FLAIR
MRI BRAIN WO CON
AWP42472

FOV: 230
HFS 256x256
5 @ 10 717452729172

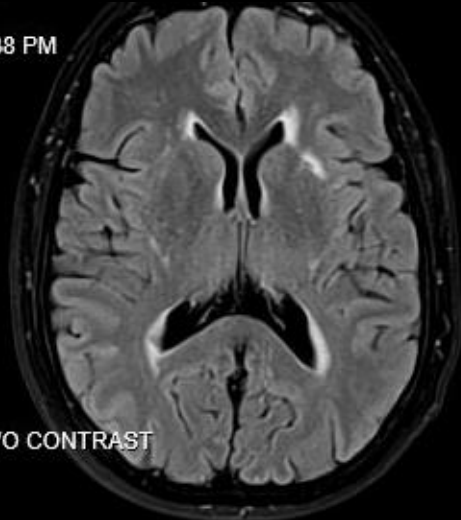


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R



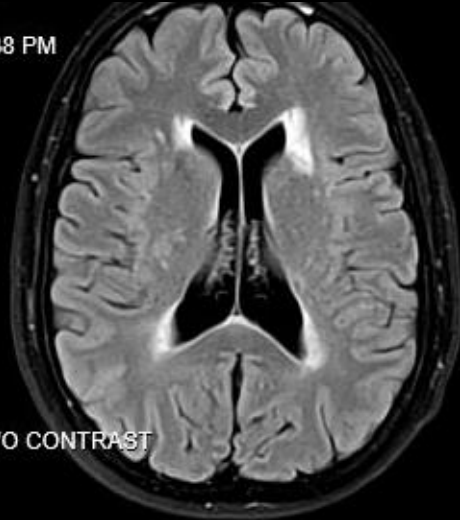
10 cm

AX FLAIR
MRI BRAIN W WO CONTRAST
FTT MR 9148

FOV: 230
HFS 512x512
5 @ -25.9362

06-Mar-24 8:10:38 PM

R



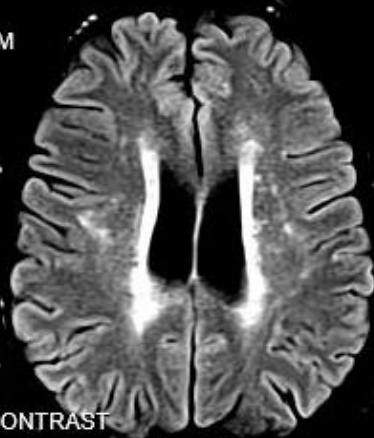
10 cm

AX FLAIR
MRI BRAIN W WO CONTRAST
FTT MR 9148

FOV: 230
HFS 512x512
5 @ -19.9362

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R



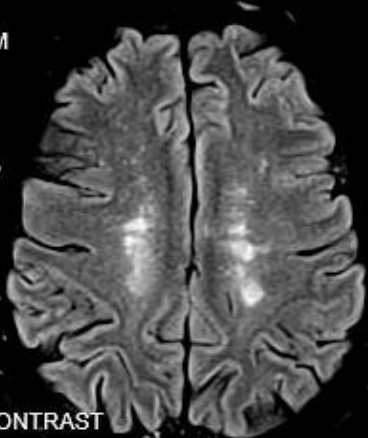
10 cm

AX FLAIR
MRI BRAIN W WO CONTRAST
FTT MR 9148

FOV: 230
HFS 512x512

06-Mar-24 8:10:38 PM

R



10 cm

AX FLAIR
MRI BRAIN W WO CONTRAST
FTT MR 9148

FOV: 230
HFS 512x512

WRAP IT UP!

1. Small vessel disease is a good indicator of brain health
2. Evidence of SVD on imaging has a higher risk of future ICH and AIS
3. Primary and secondary prevention of risk factors are key

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