Cerebrovascular diseases in Pregnancy

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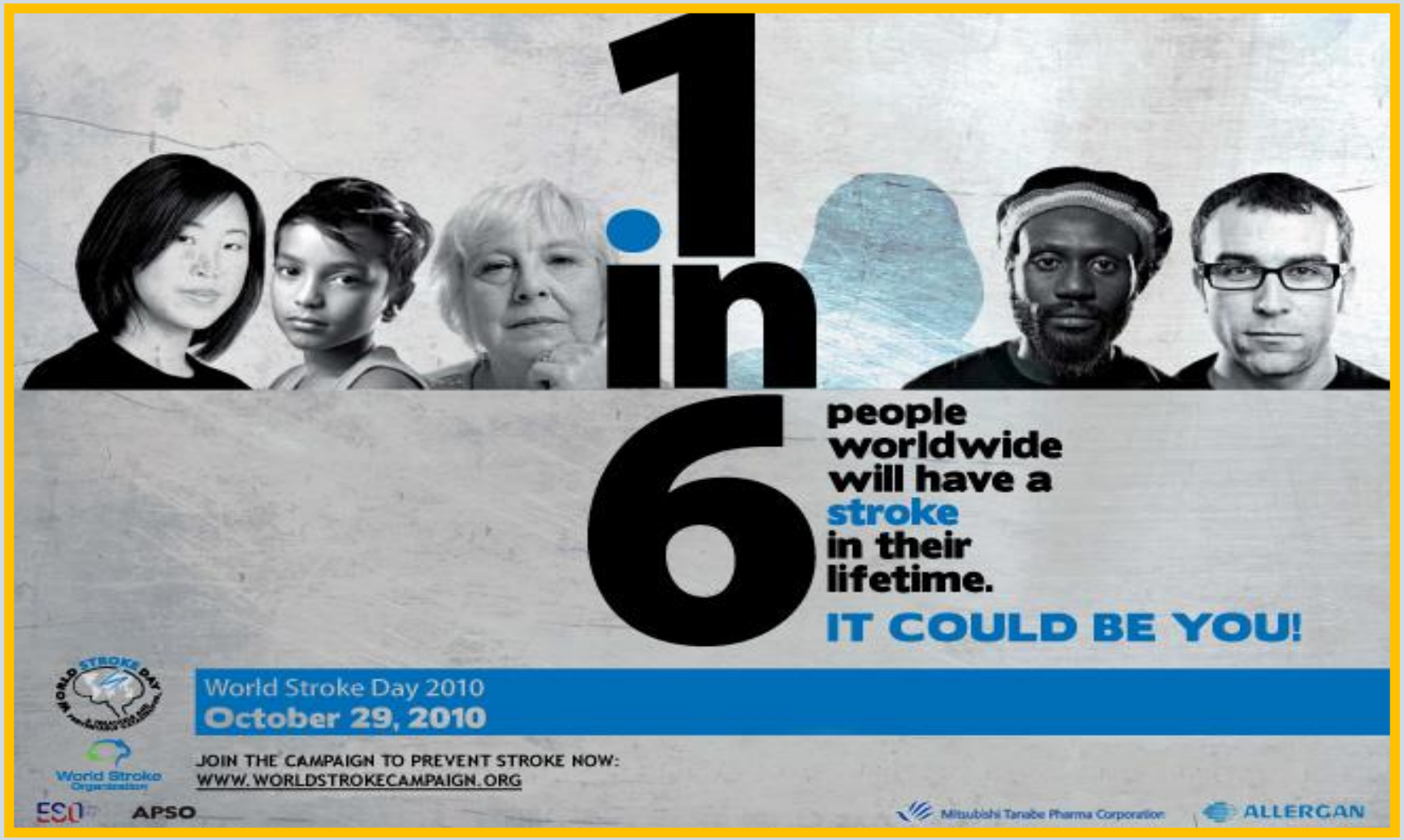
STROKE NEUROLOGIST, TABRIZ UMS

Disclosure

- None

Outline…

1. Stroke: prevalence, pathophysiology, signs, Importance of time, Sama code, 724 hospitals
2. Stroke in pregnancy
3. CVT in pregnancy


1 in 6
people worldwide will have a stroke in their lifetime.
IT COULD BE YOU!
World Stroke Day 2010
October 29, 2010
JOIN THE CAMPAIGN TO PREVENT STROKE NOW:
WWW.WORLDSTROKECAMPAIGN.ORG
World Stroke Organization
ESO
APSO
Mitsubishi Tanabe Pharma Corporation
ALLERGAN

1 in 4 of us will have a stroke.

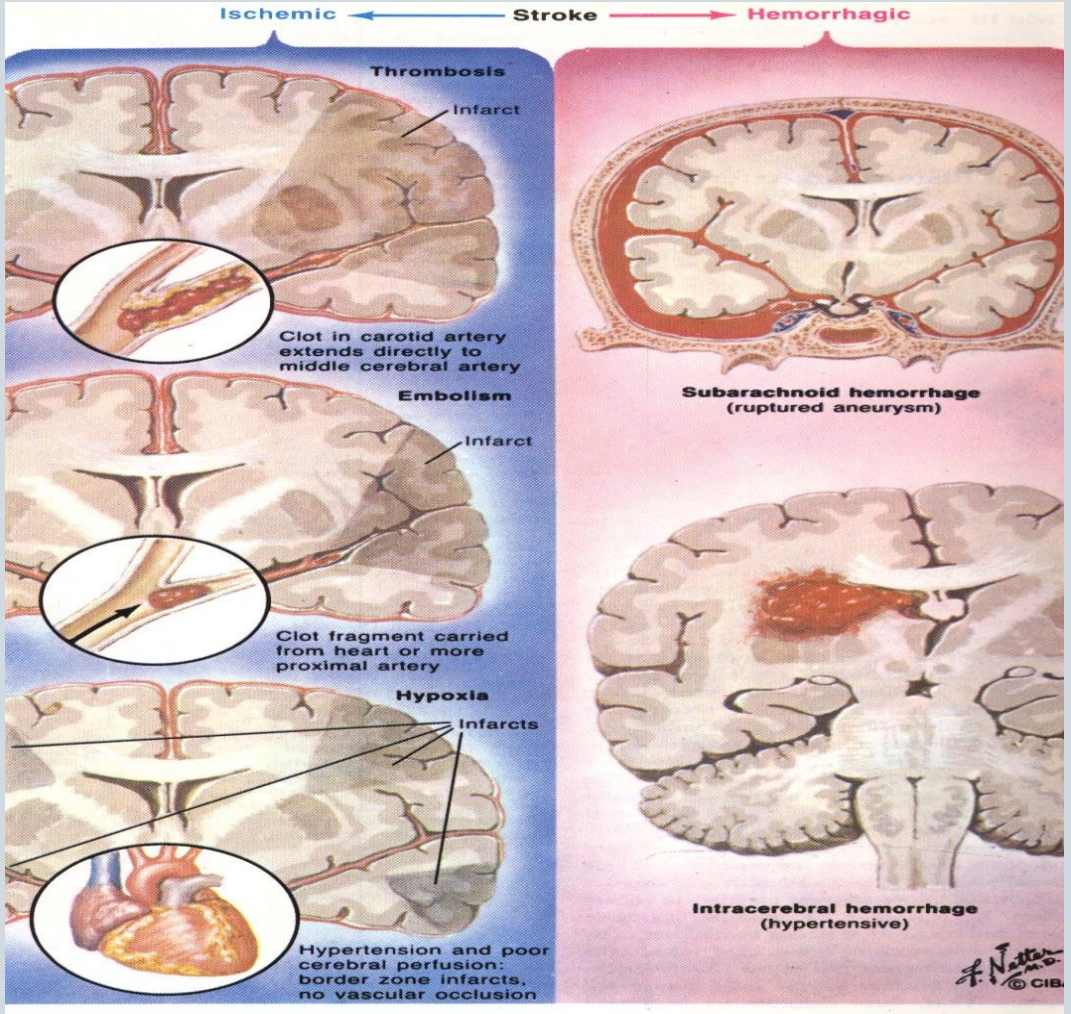
DON'T BE THE ONE

World Stroke Organization

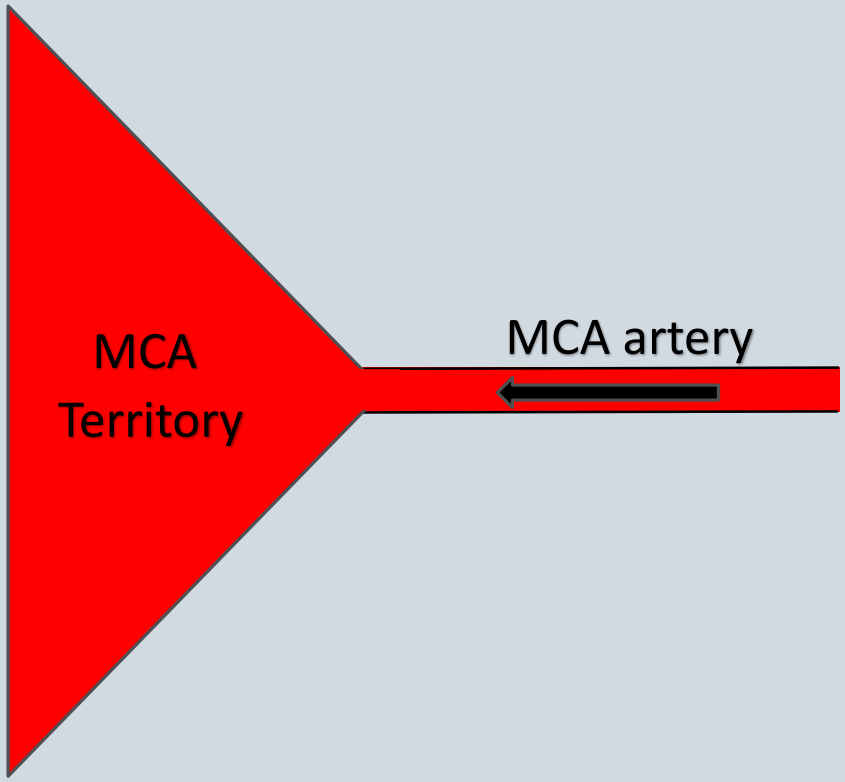
World Stroke Day: October 29th

Stroke subtypes

1. Ischemic (Ischemic stroke, TIA)
2. Hemorrhagic stroke (ICH, SAH)

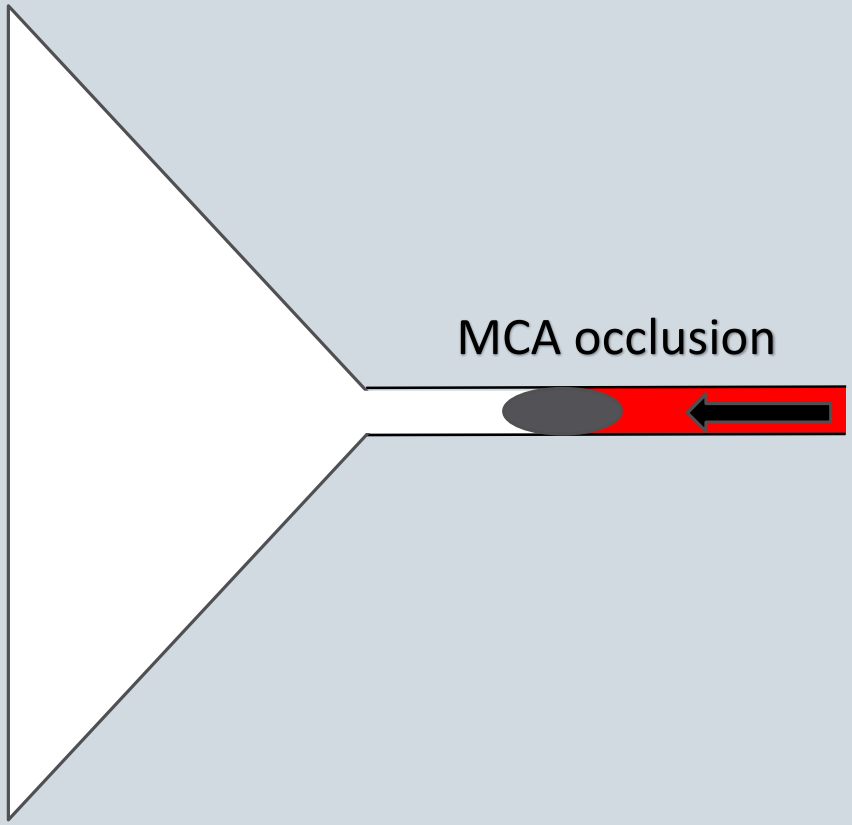


Importance of time (time is brain)



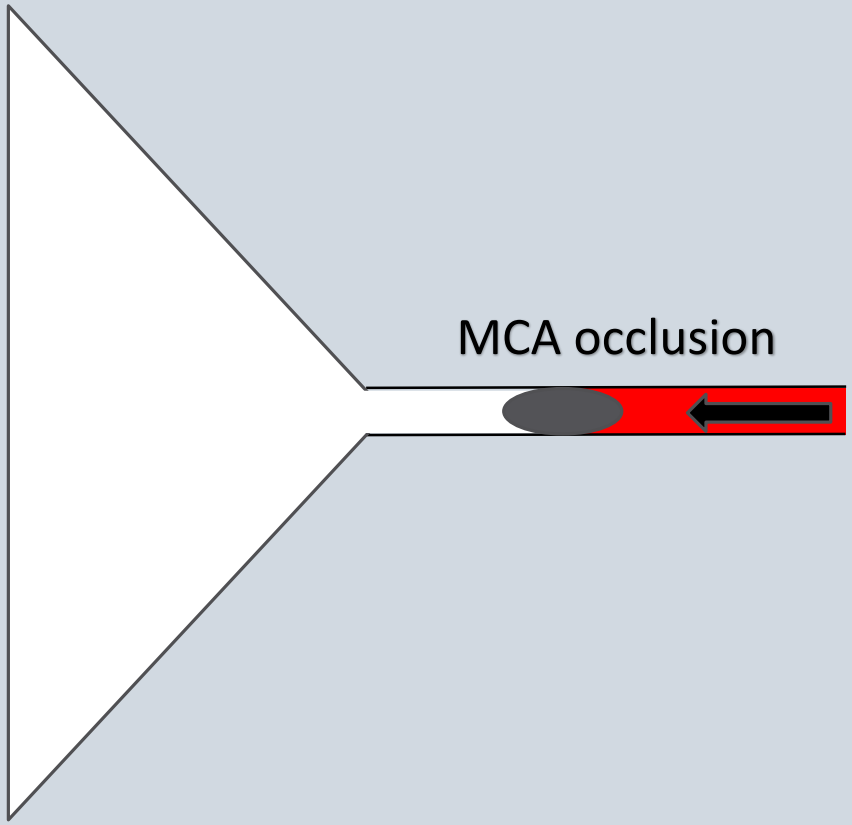
Importance of time (time is brain)

Q1: Neuronal dysfunction begins after 6 seconds and neuronal death begins after 6 mins, so how can golden time be as long as 4.5 hours?

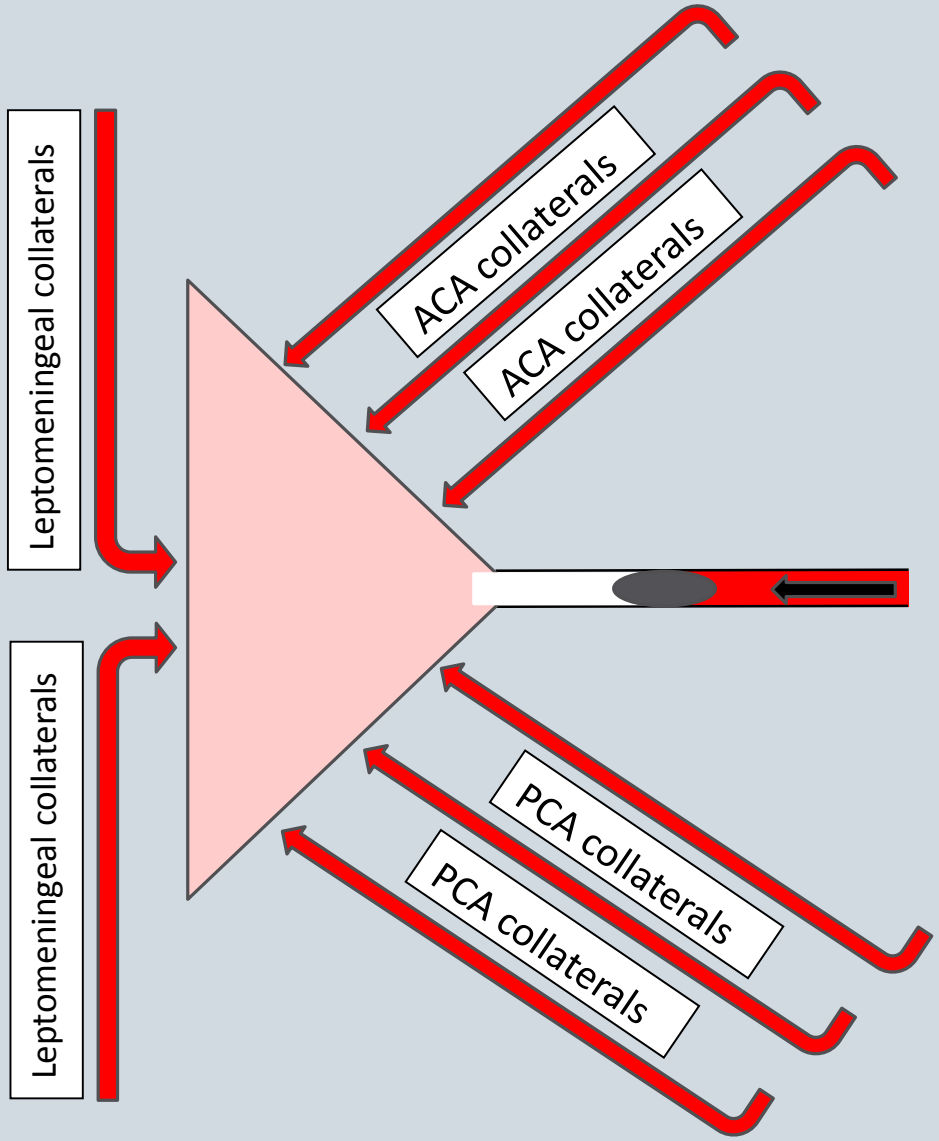


Importance of time (time is brain)

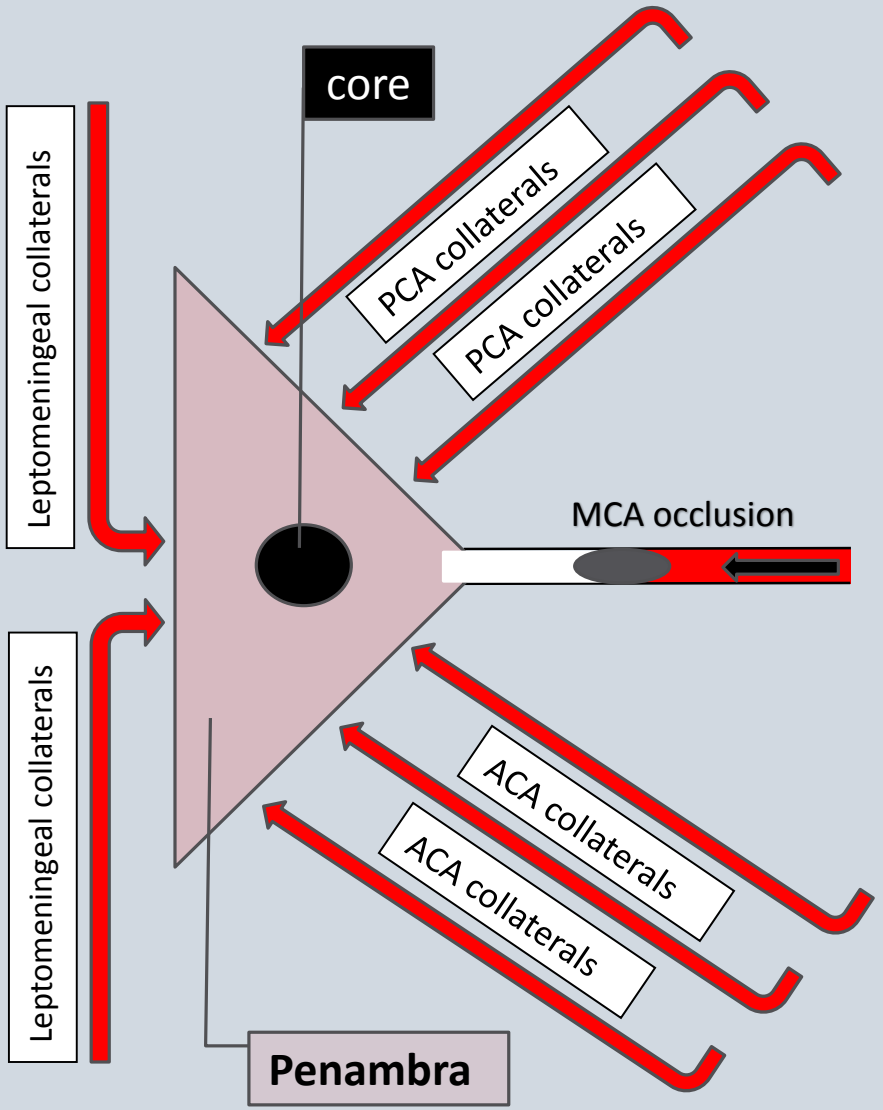
Q2: if golden time is 4.5 hours for brain, why we continue CPR just for 30 mins?



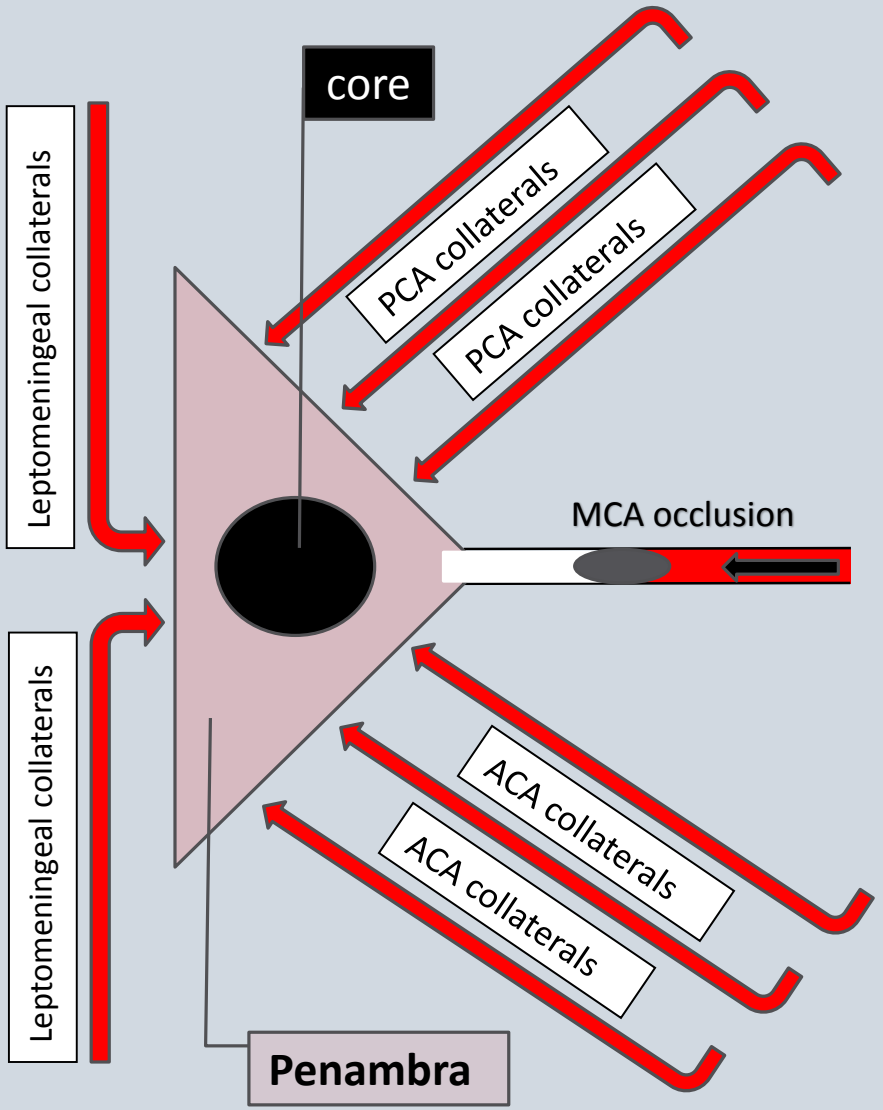
Collateral pathways help for circulation



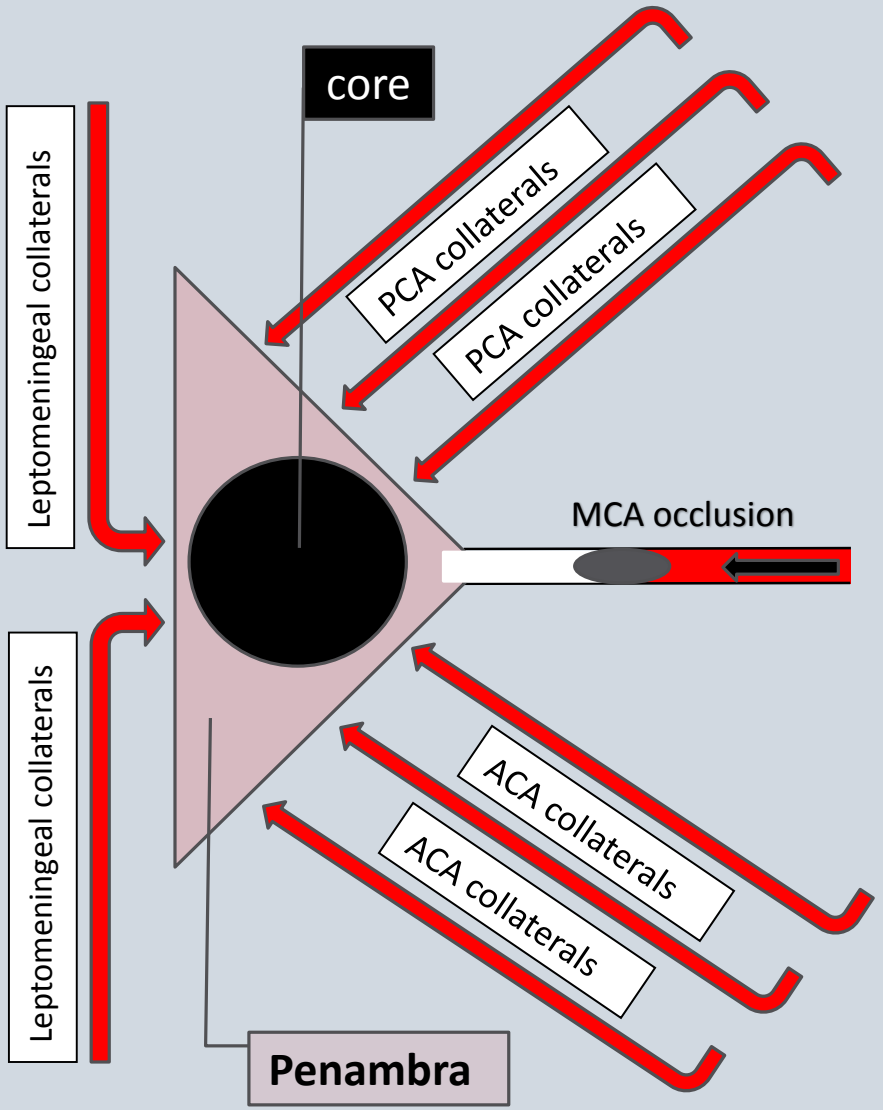
After one hour



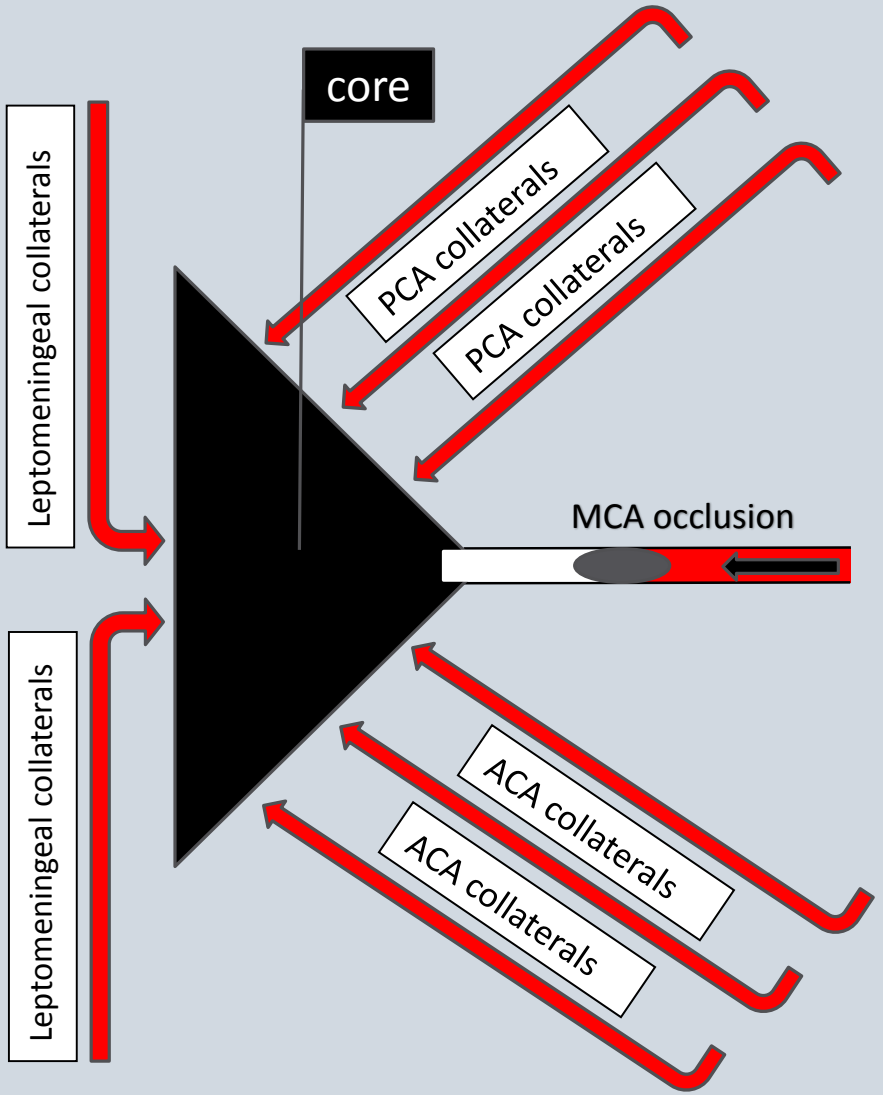
After two hours



After three hours



Finally after golden time (collateral exhaustion)



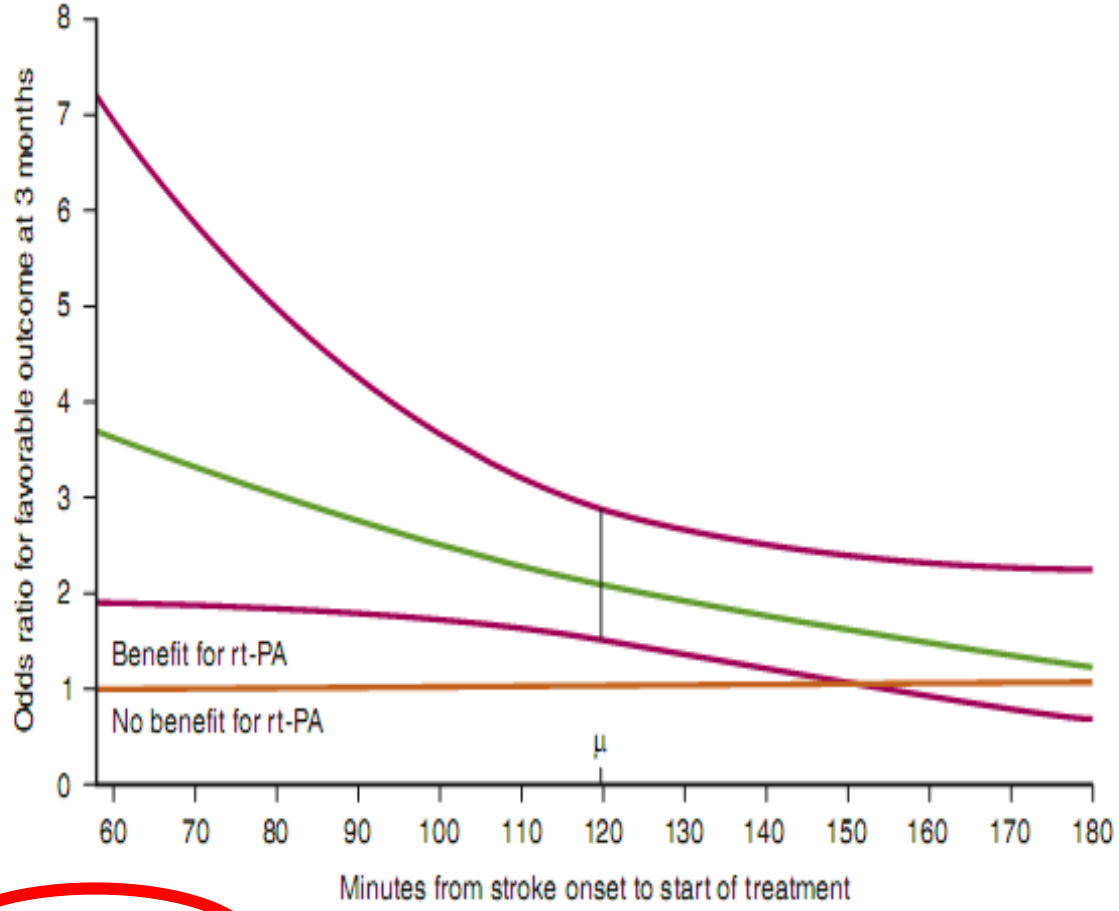
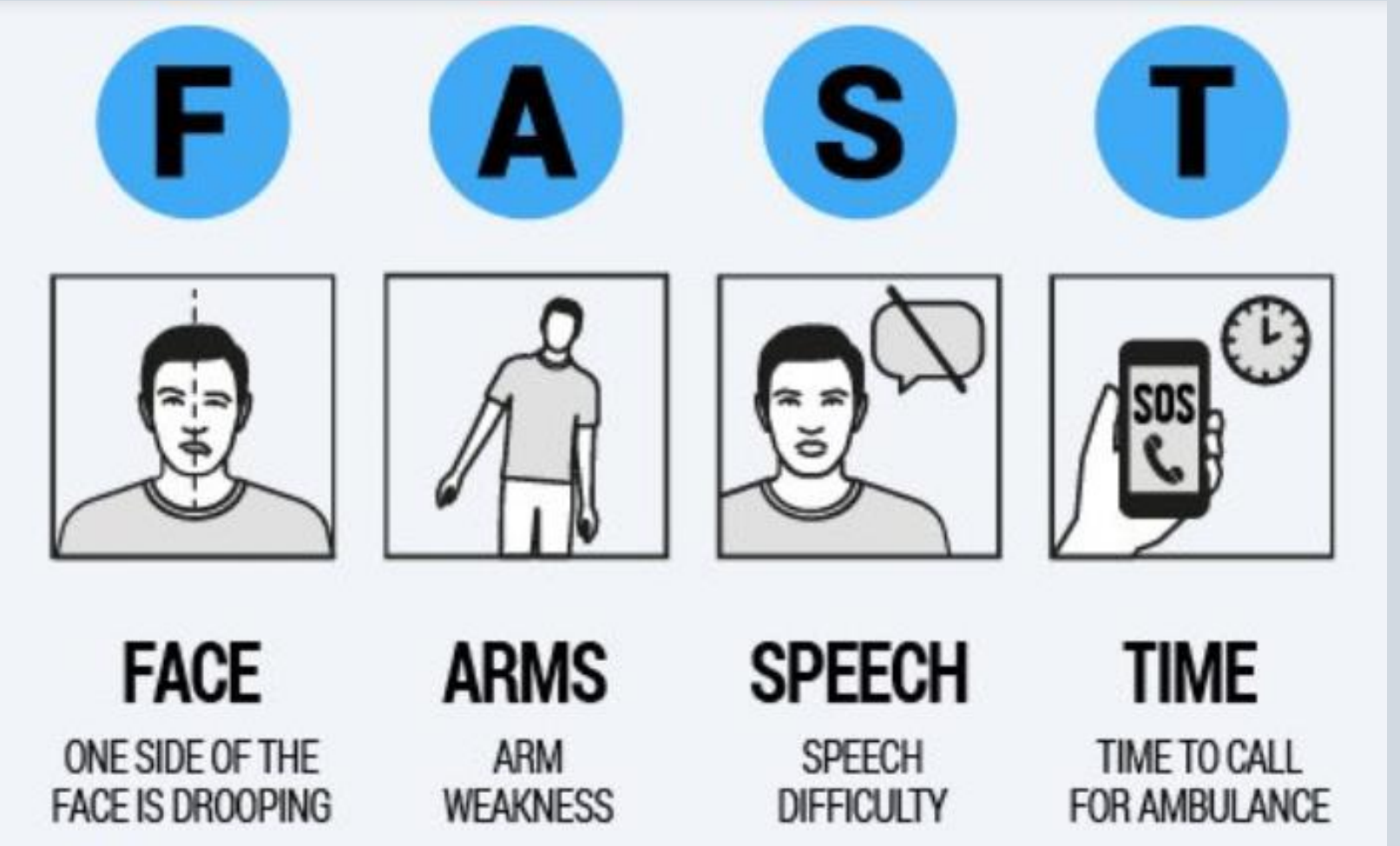
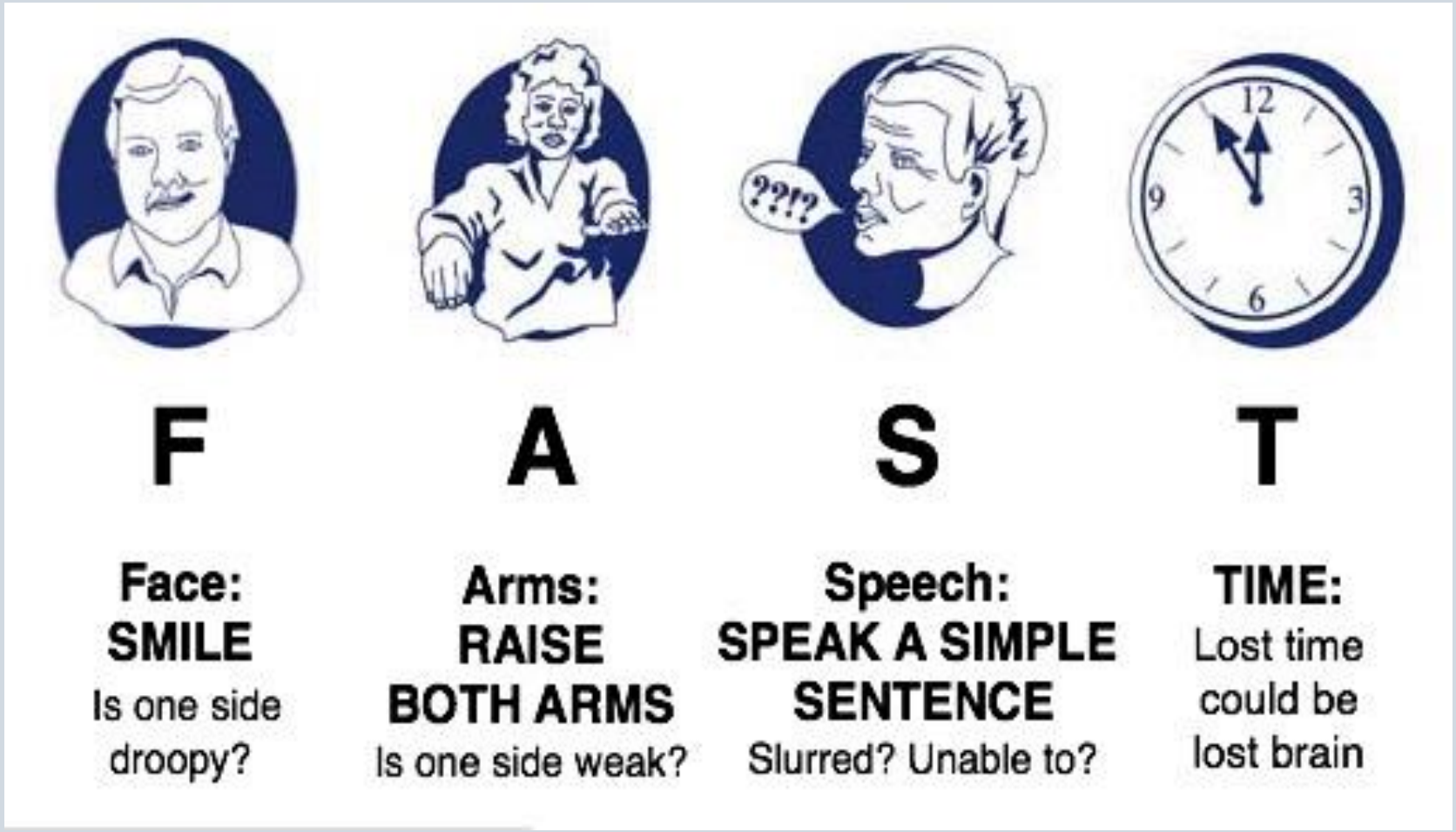


Figure 49-10 Time to treatment effect: This figure shows that t-PA benefit disappears as the time from onset to t-PA treatment approaches 3 hours. (From Müller J, Tilley B, Lu M, et al: Early stroke treatment associated with better outcome: The NINDS rt-PA Stroke Study. *Neurology* 55:1649-1655, 2000.)

Stroke symptoms (FAST)



Stroke symptoms (FAST)



Golden time

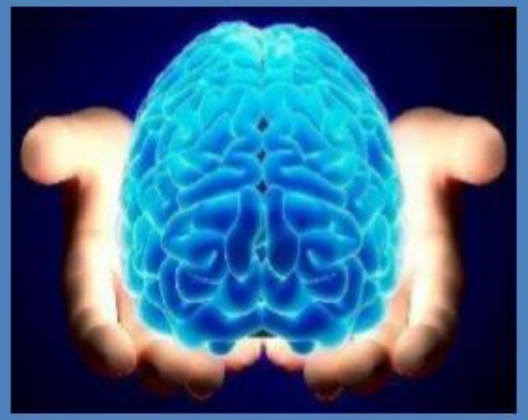
It is 4.5 hours for IV thrombolysis, more for mechanical thrombectomy

What to do next?

If your not in the hospital then

Call 115

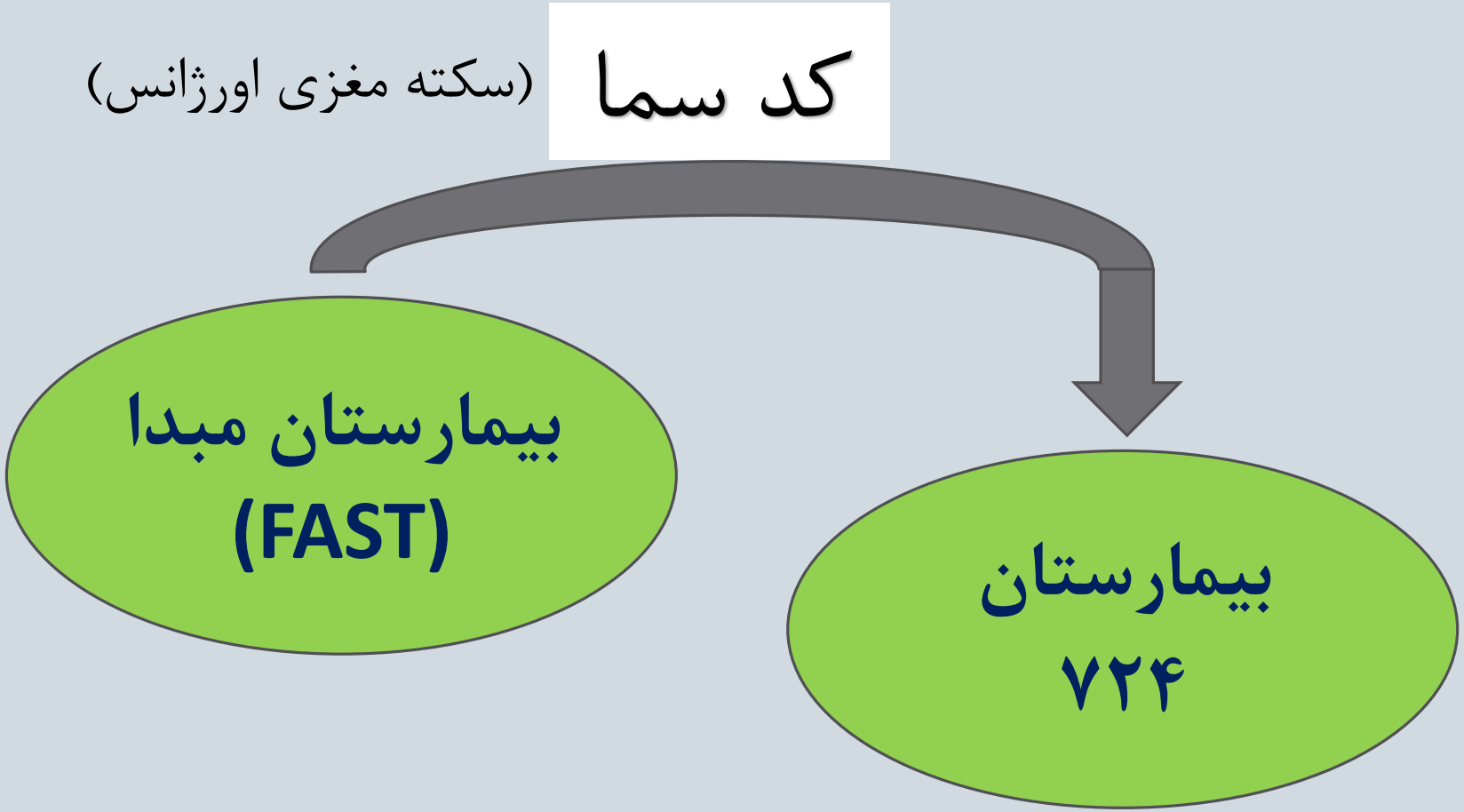
But if you are a treating physician in an ED then …

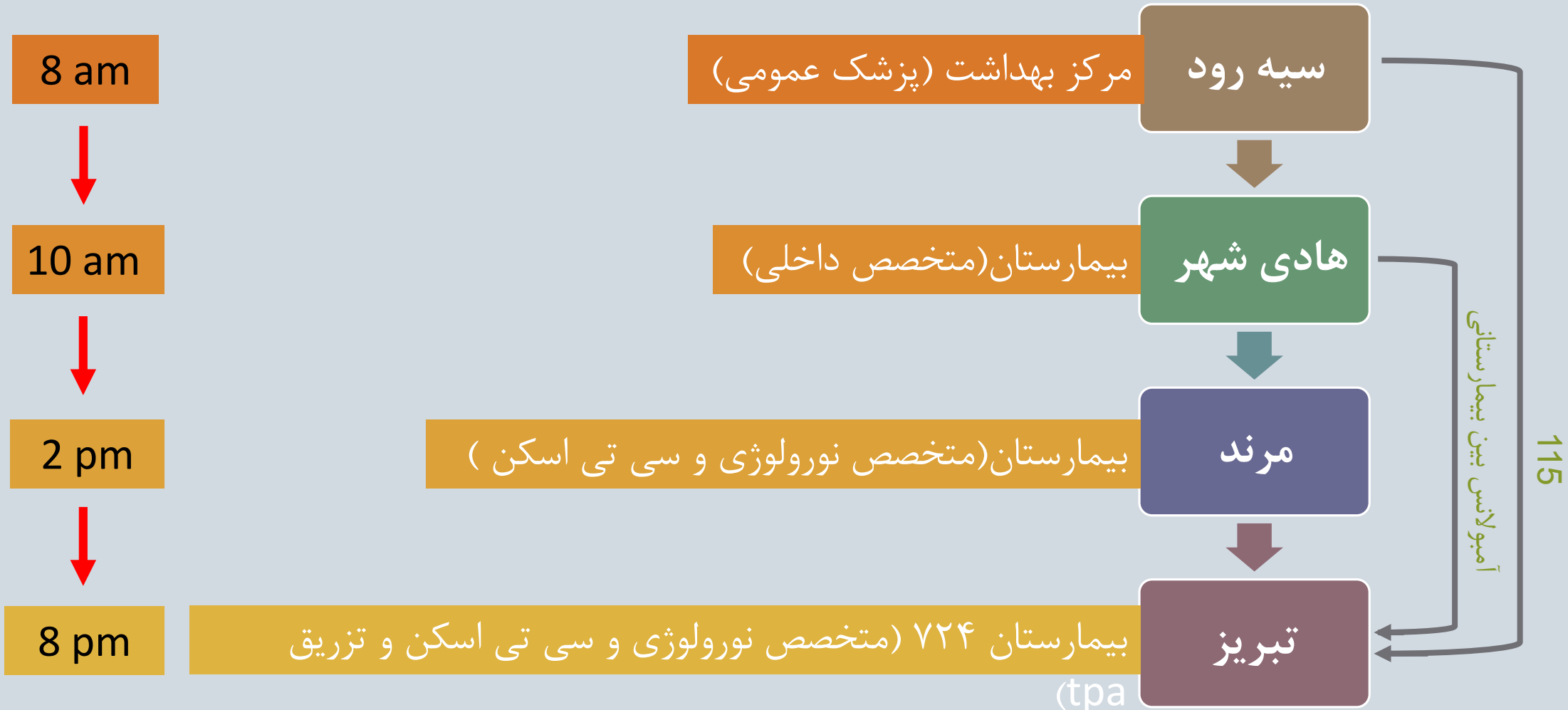


پروتکل درمان
بیماران سکته مغزی حاد در اورژانس و
بخش SCU (ICU 7) بیمارستان امام رضا (ع) تبریز

ویرایش پنجم، پاندمی کوید ۱۹

بهار ۱۴۰۰


کد سما
(سکته مغزی اورژانس)
بیمارستان مبدا
(FAST)
بیمارستان
۷۲۴
۷ روز هفته و ۲۴ ساعته


8 am
10 am
2 pm
8 pm
سیه رود
مرکز بهداشت (پزشک عمومی)
هادی شهر
بیمارستان(متخصص داخلی)
مرند
بیمارستان(متخصص نورولوژی و سی تی اسکن)
تبریز
بیمارستان ۷۲۴ (متخصص نورولوژی و سی تی اسکن و تزریق
(tpa
آمبولانس بین بیمارستانی
115

کد سما چگونه فعال می شود؟

تماس با مرکزرصد سلامت: (۱۱۷)

پایش فعالیت‌های ۱۰۰ مرکز آموزشی درمانی و بیمارستان دانشگاهی استانهای آذربایجان شرقی، اردبیل، آذربایجان غربی و دانشکده علوم پزشکی مراغه ،در تمام ساعات شبانه روز بصورت ۲۴ ساعته ، توسط مرکز رصد سلامت دانشگاه علوم پزشکی تبریز انجام می شود.

تمامی مکالمات ضبط و قابل پیگیری است.

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APRIL 2020
VOL. 26 NO. 2
Cerebrovascular Disease

International Journal of Stroke WSO

Guidelines

Canadian Stroke Best Practice Consensus Statement: *Acute Stroke Management during pregnancy*

International Journal of Stroke
2018, Vol. 13(7) 743–758

DOI: 10.1177/1747493018786617
journals.sagepub.com/home/wso
SAGE

Noor Niyar N Ladhani[1,2], Richard H Swartz[1,3], Norine Foley[4,5],

PREGNANCY-RELATED STROKE

- pregnant and postpartum women are at 3 times higher risk of stroke than other young adults.
- A crude incidence stroke rate of 30.0 per 100,000 pregnancies and the rates for ischemic stroke, cerebral venous sinus thrombosis, and intracerebral hemorrhage are roughly equal within this combined rate.
- pregnancy-related stroke incidence has been increasing over time, particularly postpartum, as shown by an 83% increase from 1994 to 2007. This was related to a concurrent increase in heart disease and hypertension during this same time period.

PREGNANCY-RELATED STROKE

- Hypertensive disorders of pregnancy (including preeclampsia, eclampsia, and gestational hypertension) and reversible cerebral vasoconstriction syndrome (RCVS) and posterior reversible encephalopathy syndrome (PRES) are associated with both ischemic and hemorrhagic stroke.
- Hypertensive disorders of pregnancy, which increased in prevalence from 1994 to 2011, confer a more than a fivefold increase in the risk of stroke compared to women without these conditions.

PREGNANCY-RELATED STROKE

- The most common causes of ischemic stroke during pregnancy are:

  cardioembolism, coagulopathy, and preeclampsia/eclampsia,

- The most common causes of hemorrhagic stroke:

  aneurysm, arteriovenous malformation, preeclampsia/eclampsia, HELLP (hemolysis, elevated liver enzymes, and low platelet count) syndrome, and coagulopathy

- Risk factors for both stroke types during pregnancy overlap with those noted for nonpregnant young adults, but those unique to pregnancy include:

  peripartum cardiomyopathy, choriocarcinoma, and amniotic fluid embolus, the latter of which is very rare.

Diagnosis

Noncontrast CT imaging for acute stroke is acceptable during all trimesters and postpartum, particularly because the risk of missing the diagnosis of a stroke outweighs the risk of the radiation.

A typical CT of the mother's head carries a fetal radiation dose exposure of 0.001 mGy. The typical occupational limit for fetal radiation is 5 mGy. Therefore, the fetal exposure from a maternal CT head is 5000 times less than the allowable occupational exposure and carries negligible risks for fetal malformation, abortion, or other pregnancy complications when compared to the general risks of pregnancy.

There is a lack of available evidence on any known harm identified in human or animal studies of exposure to CT contrast dye.

For breastfeeding, less than 1% of CT contrast dye is excreted in breast milk; of that, less than 1% is absorbed in infant gastrointestinal tract. Continuation of breastfeeding after exposure to CT contrast dye is reasonable.

Diagnosis

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- A typical CT of the mother's head carries a fetal radiation dose exposure of 0.001 mGy. The typical occupational limit for fetal radiation is 5 mGy. Therefore, the fetal exposure from a maternal CT head is 5000 times less than the allowable occupational exposure and carries negligible risks for fetal malformation, abortion, or other pregnancy complications when compared to the general risks of pregnancy.

Diagnosis

- MRI without gadolinium is considered safe in pregnant women regardless of gestational age when the information gained from the imaging cannot be delayed until after delivery.
- Gadolinium exposure in the first trimester may be associated with an increased risk of adverse outcomes. Even outside of pregnancy, gadolinium is rarely needed in the setting of acute stroke diagnosis. Therefore, gadolinium is not recommended for stroke assessment in women with known pregnancy.

Delivery

- In women at very high risk of intracranial bleeding (acute ischemic stroke with hemorrhagic transformation, an unsecured aneurysm, AVM, or a CVST with elevated intracranial pressure), Cesarean delivery may be considered, acknowledging that there are inherent maternal risks with Cesarean delivery as well.

Treatment

AHA/ASA Guideline

Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke

Pregnancy	IV alteplase administration may be considered in pregnancy when the anticipated benefits of treating moderate or severe stroke outweigh the anticipated increased risks of uterine bleeding.† (*COR IIb; LOE C-LD*)§
	The safety and efficacy of IV alteplase in the early postpartum period (<14 d after delivery) have not been well established.† (*COR IIb; LOE C-LD*)§

Treatment

- Alteplase does not cross the placenta and is not expected to increase the risk of intracranial or systemic bleeding in the fetus, so the decision to administer this drug is based on maternal bleeding risk associated with the acute stroke.

- Endovascular thrombectomy is also an option for large vessel occlusions in a pregnant woman (with appropriate abdominal shielding and limited use of x-ray exposure).

Thank you