SNS COLLEGE OF PHYSIOTHERAPY
COIMBATORE - 641035

COURSE NAME	**: BPT., Physiotherapy II Year**
SUBJECT	**:General medicine**
UNIT	**: 3**
TOPIC	**: Cerebro Vascular Accident (CVA)**
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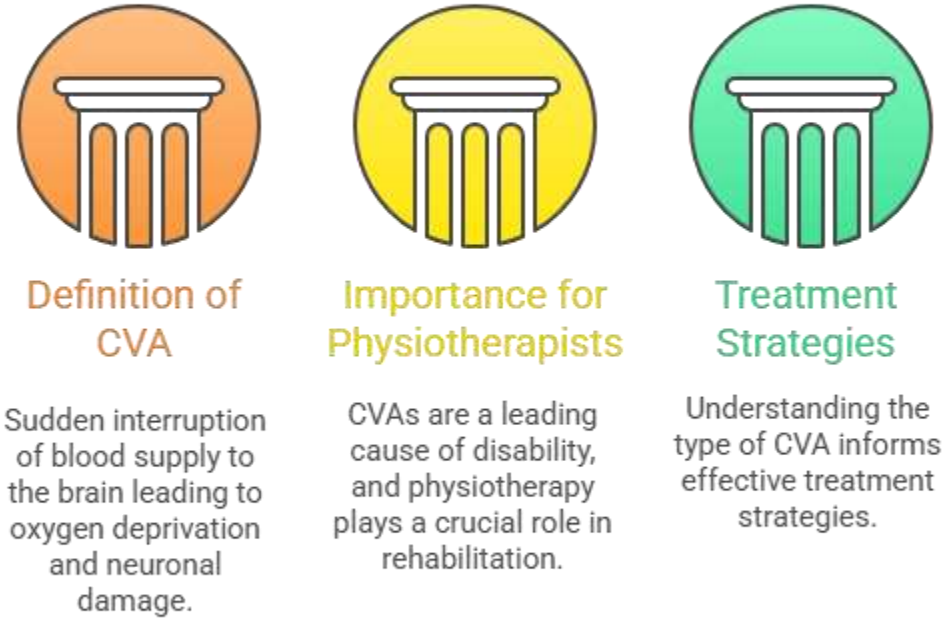
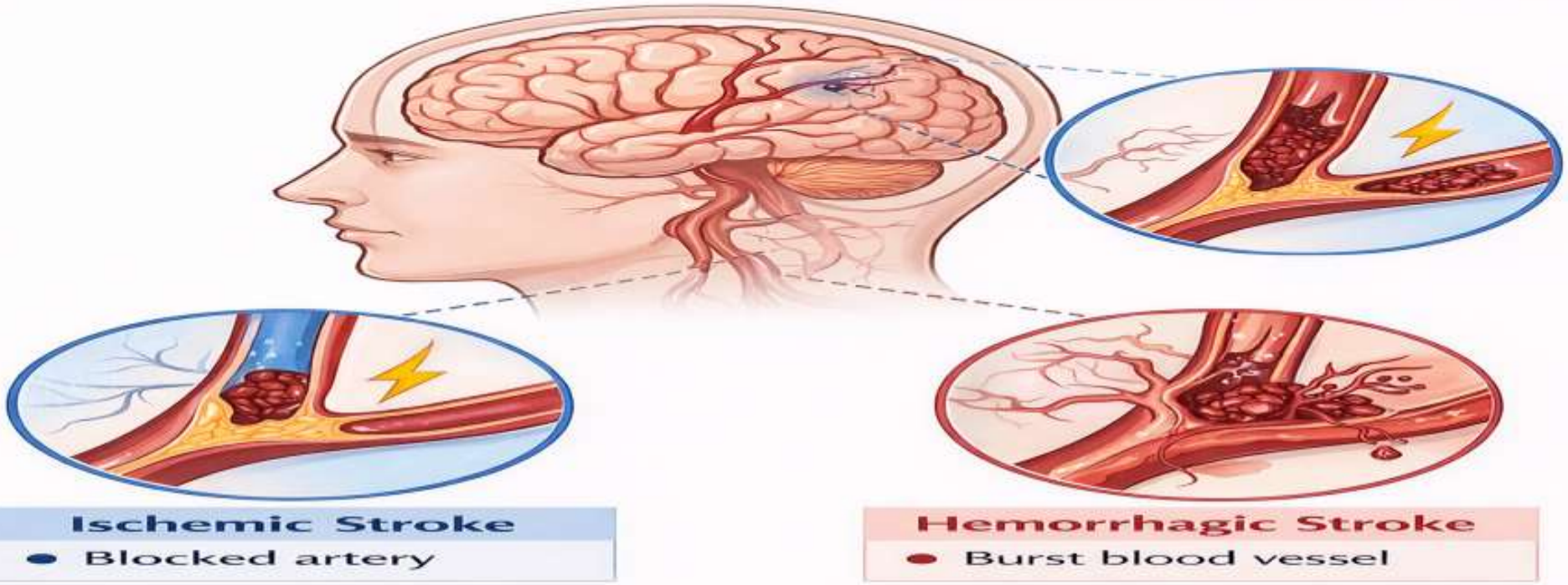
Understanding Cerebrovascular Accidents



A **Cerebrovascular Accident (CVA)**, commonly known as a **stroke**, is a **sudden neurological deficit** caused by an **interruption of blood supply to the brain** due to either **vascular occlusion (ischemia)** or **rupture of a blood vessel (hemorrhage)**, resulting in **focal or global impairment of brain function** lasting **more than 24 hours or leading to death**.

Cerebrovascular Accident (CVA)

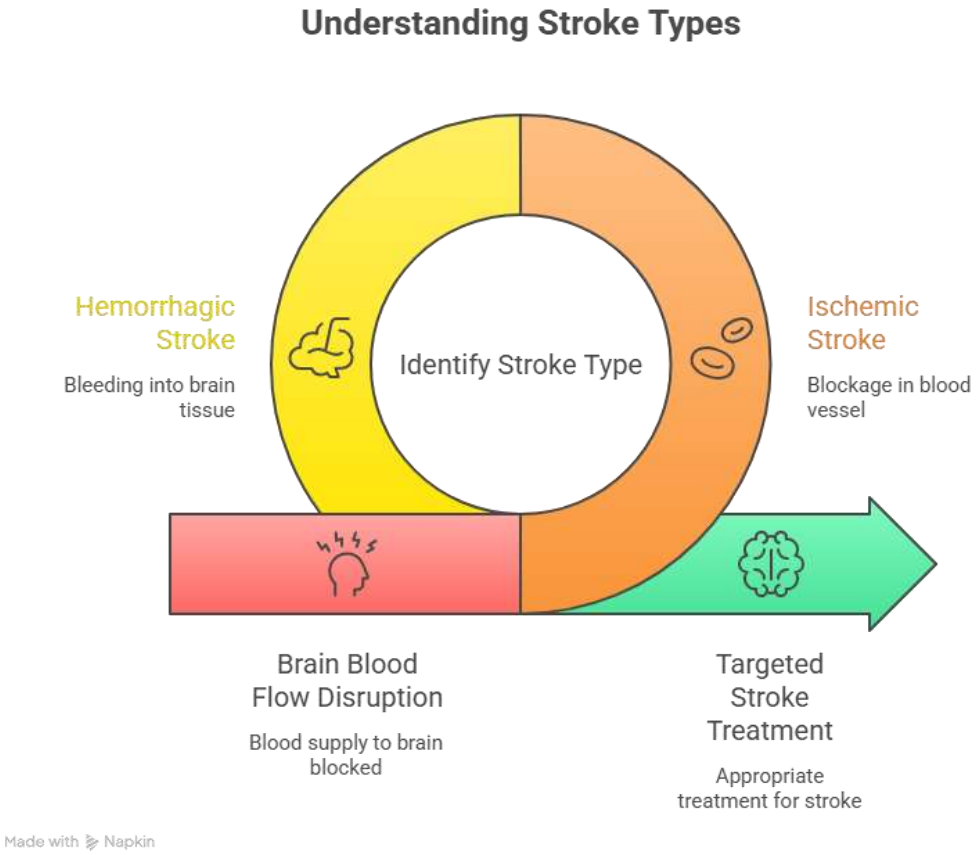


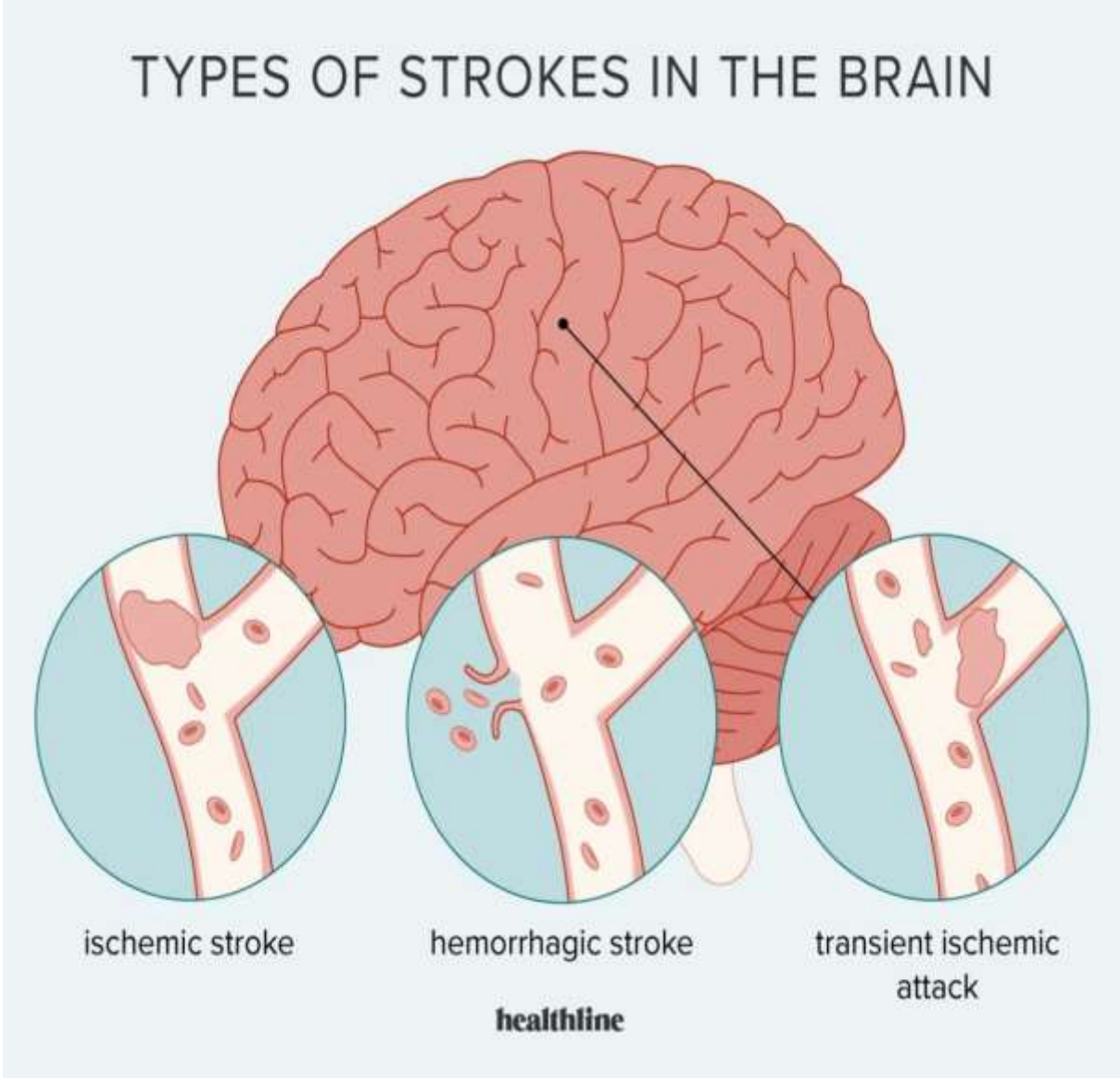
Ischemic Stroke
- Blocked artery

Hemorrhagic Stroke
- Burst blood vessel

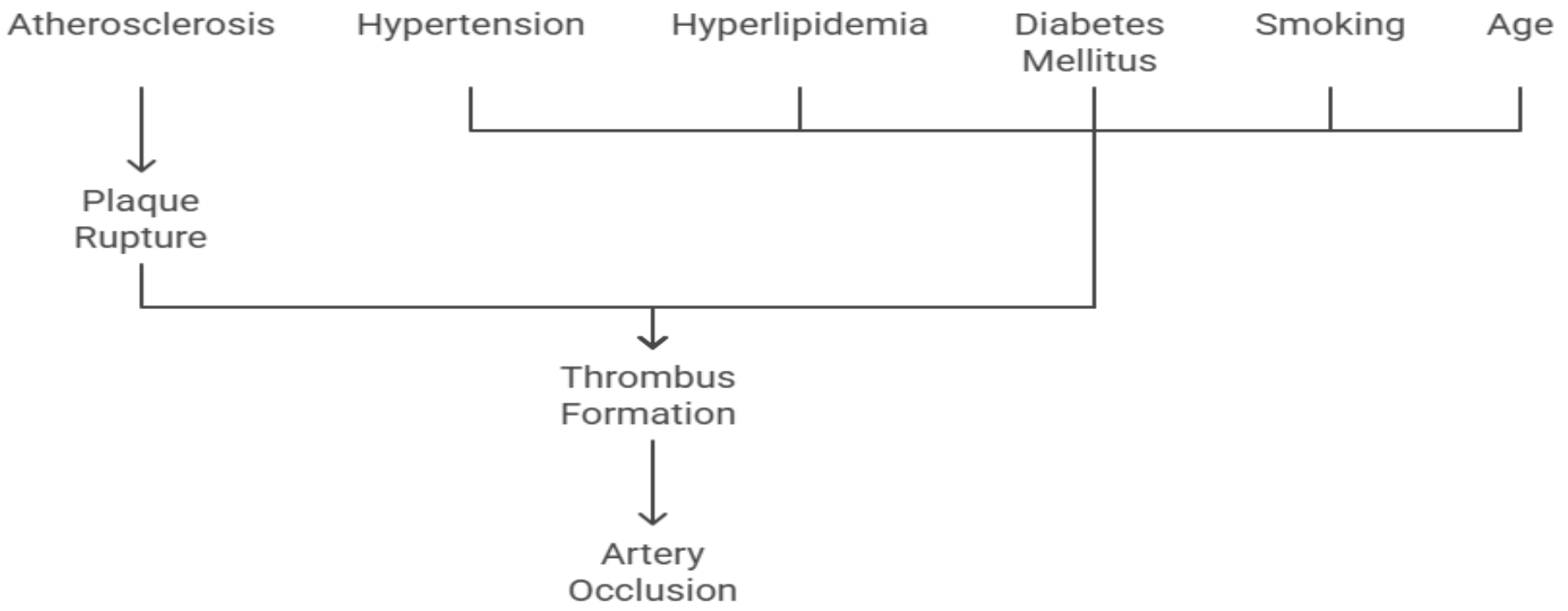
A CVA, or stroke, is a sudden neurological deficit caused by an interruption of blood supply to the brain due to **either vascular occlusion** (ischemic) or rupture of a blood vessel (**hemorrhagic**), resulting in focal or global impairment of brain function lasting more than 24 hours or leading to **death**.

A CVA, or **stroke**, is a sudden neurological deficit caused by an interruption of blood supply to the brain due to **either vascular** occlusion (ischemic) or rupture of a **blood vessel** (**hemorrhagic**), resulting in focal or global impairment of **brain function** lasting more than 24 hours or leading to **death**.


Understanding Stroke Types
Hemorrhagic Stroke
Bleeding into brain tissue
Identify Stroke Type
Ischemic Stroke
Blockage in blood vessel
Brain Blood Flow Disruption
Blood supply to brain blocked
Targeted Stroke Treatment
Appropriate treatment for stroke
Made with Napkin

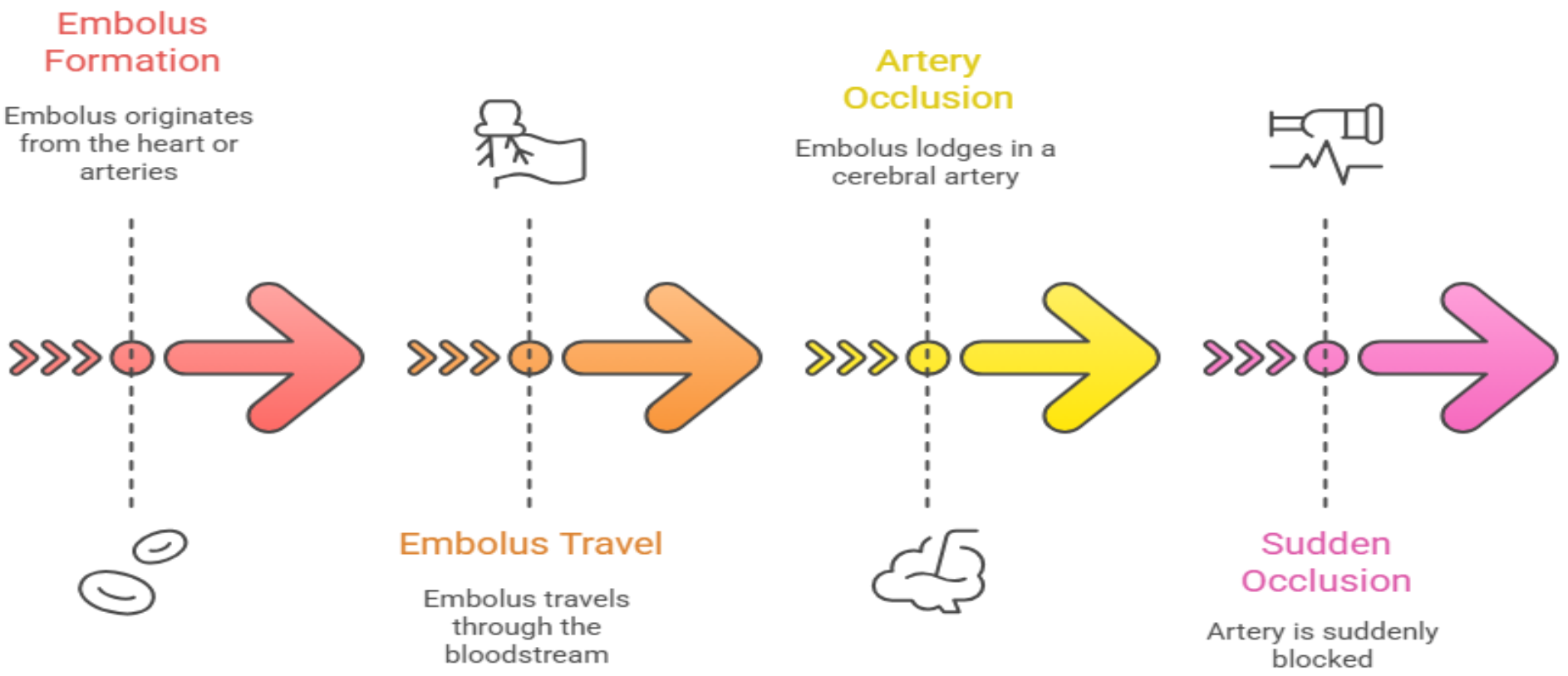

TYPES OF STROKES IN THE BRAIN
ischemic stroke
hemorrhagic stroke
transient ischemic attack
healthline

Ischemic Stroke - Thrombosis

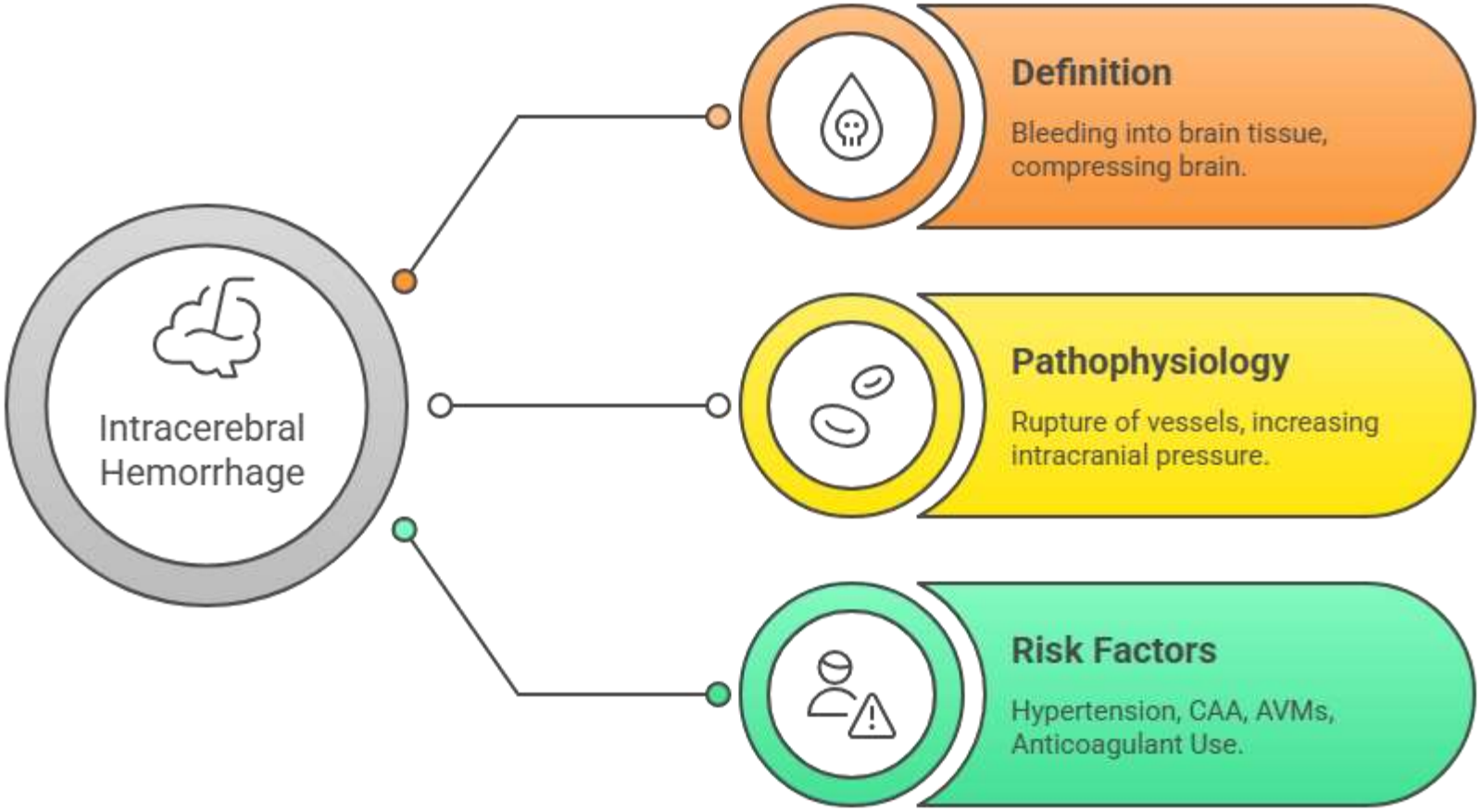


Made with Napkin

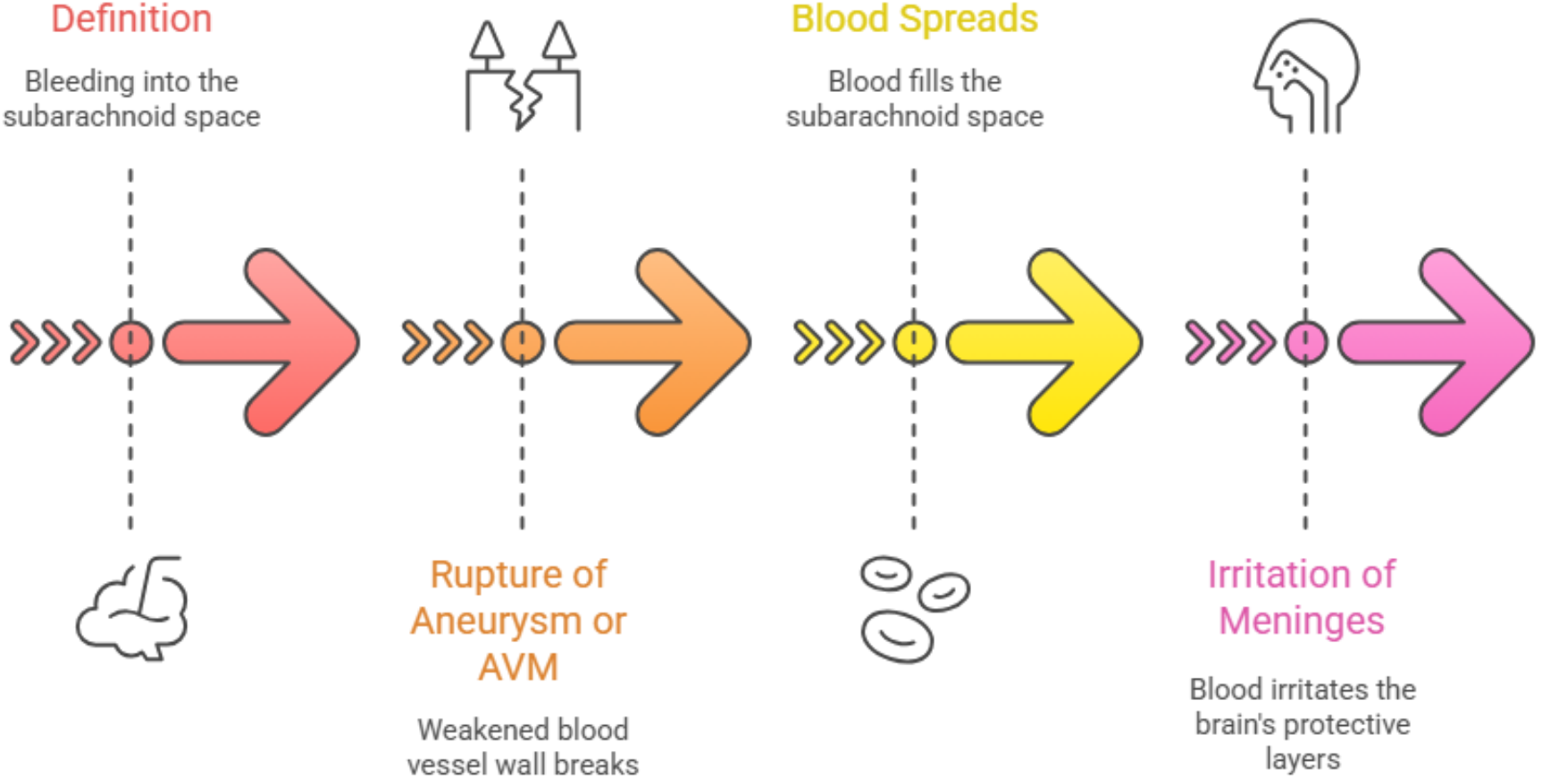
Embolic Stroke Sequence



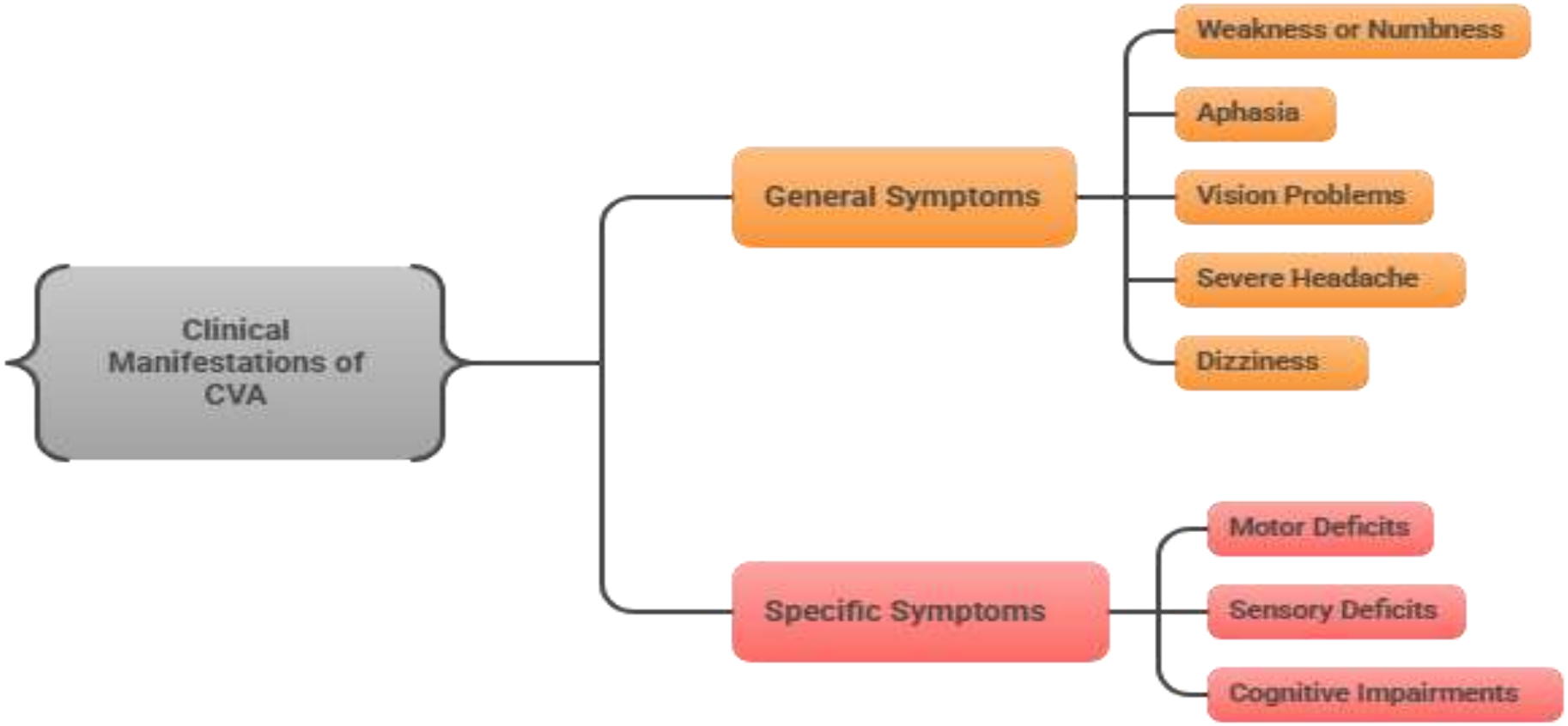
Exploring Intracerebral Hemorrhage



Subarachnoid Hemorrhage Pathophysiology



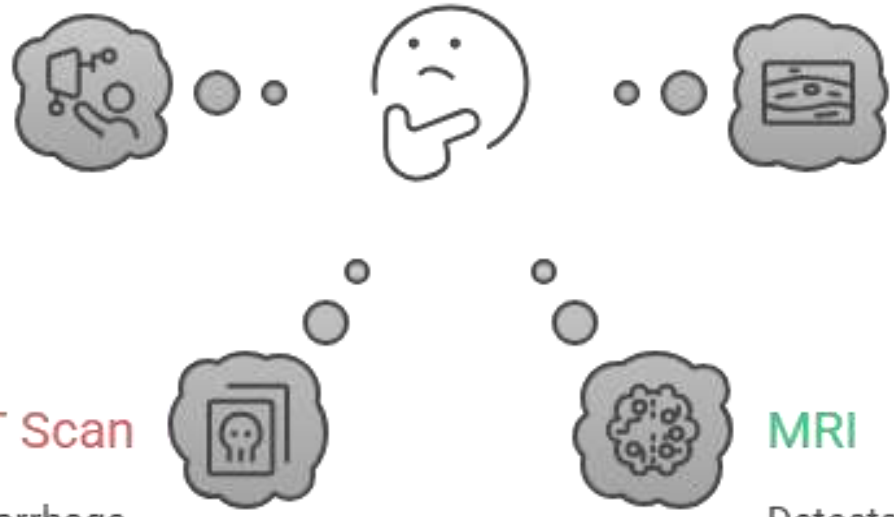
Clinical Manifestations of Cerebrovascular Accidents



Artery Occlusion Effects

Effect	Hemiparesis/Sensory Loss	Language/Cognition	Other	Other
MCA	Contralateral, face/arm > leg	Aphasia (dominant hemisphere)	Neglect (non-dominant hemisphere)	No significant impact
ACA	Contralateral, leg > arm	Behavioral changes	No significant impact	No significant impact
PCA	No significant impact	Memory problems	Visual field deficits	No significant impact
Brainstem	Locked-in syndrome	No significant impact	Cranial nerve deficits	Balance/coordination problems

Which diagnostic tool should be used for CVA assessment?



Neurological Examination

Assesses motor, sensory, and cognitive functions to identify potential CVA symptoms.

Angiography

Visualizes blood vessels to identify blockages or aneurysms.

CT Scan

Rules out hemorrhage, providing a quick overview of the brain.

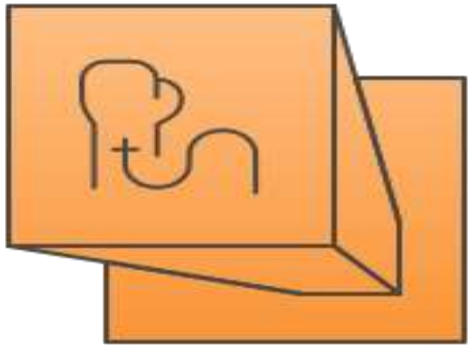
MRI

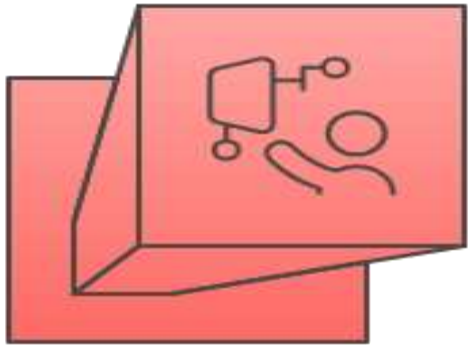
Detects ischemic stroke more sensitively, especially in early stages.

Stroke Management Strategies

Endovascular Thrombectomy

Endovascular thrombectomy effectively removes clots in ischemic stroke.



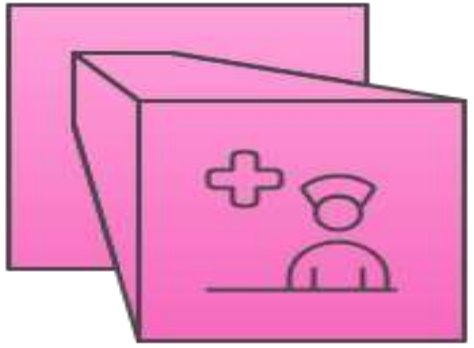


Surgical Intervention

Surgical intervention is crucial for managing hemorrhagic stroke complications.

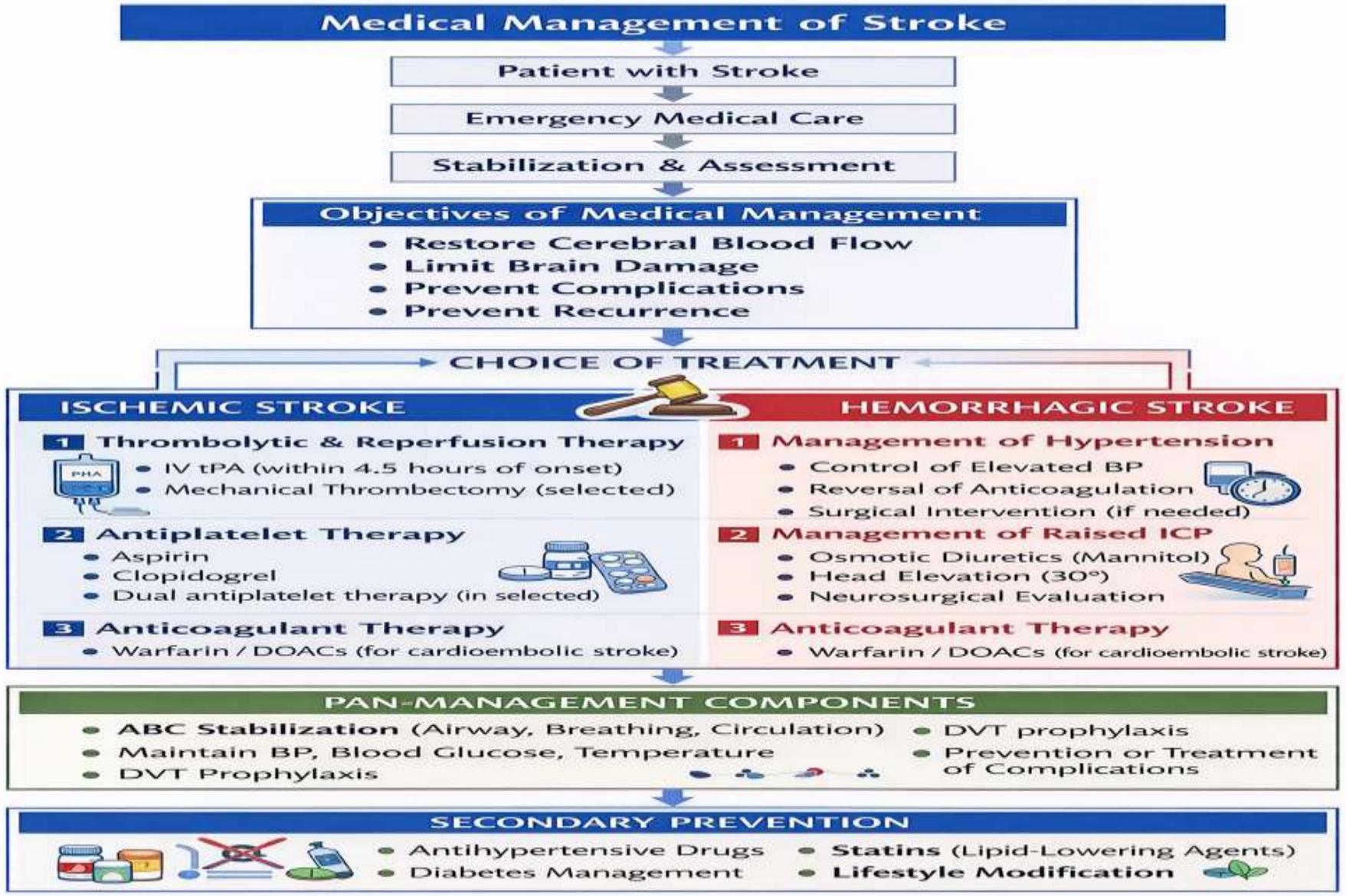
Thrombolysis (tPA)

Thrombolysis dissolves clots in ischemic stroke within a time window.



Blood Pressure Control

Blood pressure control prevents further bleeding in hemorrhagic stroke.


Medical Management of Stroke
Patient with Stroke
Emergency Medical Care
Stabilization & Assessment
Objectives of Medical Management
Restore Cerebral Blood Flow
Limit Brain Damage
Prevent Complications
Prevent Recurrence
CHOICE OF TREATMENT
ISCHEMIC STROKE
1 Thrombolytic & Reperfusion Therapy
IV tPA (within 4.5 hours of onset)
Mechanical Thrombectomy (selected)
2 Antiplatelet Therapy
Aspirin
Clopidogrel
Dual antiplatelet therapy (in selected)
3 Anticoagulant Therapy
Warfarin / DOACs (for cardioembolic stroke)
HEMORRHAGIC STROKE
1 Management of Hypertension
Control of Elevated BP
Reversal of Anticoagulation
Surgical Intervention (if needed)
2 Management of Raised ICP
Osmotic Diuretics (Mannitol)
Head Elevation (30°)
Neurosurgical Evaluation
3 Anticoagulant Therapy
Warfarin / DOACs (for cardioembolic stroke)
PAN-MANAGEMENT COMPONENTS
ABC Stabilization (Airway, Breathing, Circulation)
Maintain BP, Blood Glucose, Temperature
DVT Prophylaxis
DVT prophylaxis
Prevention or Treatment of Complications
SECONDARY PREVENTION
Antihypertensive Drugs
Diabetes Management
Statins (Lipid-Lowering Agents)
Lifestyle Modification

Prognosis and Recovery

Factors Influencing Prognosis:

- Severity of the **Stroke**
- Location of the **Stroke**
- Age & Overall **Health** of the Patient
- **Timeliness** & **Effectiveness** of Treatment
- Motivation & **Adherence** to **Rehabilitation**

Recovery is a Process:

- Significant **improvements** can occur in the first few **months**.
- Continued progress is possible for years after the stroke.

Physiotherapy Management — Acute Phase

Patient in **Acute Phase**

Physiotherapy **Assessment**

Identification of **Goals**

GOALS

- Prevent Complications
  - Pneumonia
  - Pressure Sores
  - Contractures
- Maintain Joint Range of Motion
- Promote Early Mobilization

Selection of **Interventions**

INTERVENTIONS

1. Positioning & Turning
- Regular Change of Posture
- Pressure Relief
- Optimal Limb Alignment

2. ROM Exercises
- Passive ROM
- Active-Assisted ROM
- Prevention of Stiffness & Contractures

3. *Respiratory Physiotherapy*
- Deep Breathing Exercises
- Chest Expansion Exercises
- Airway Clearance Techniques

Expected **Outcomes**

Reduced Complications & Improved Recovery

Physiotherapy Management — Rehabilitation Phase

Patient in **Rehabilitation Phase**

Physiotherapy **Assessment**

Identification of **Goals**

GOALS

- **Improve Motor Control & Strength**
- **Enhance Balance & Coordination**
- **Improve Functional Mobility** (Walking, Transfers)
- Promote Independence in Activities of Daily Living (ADLs)

Selection of **Interventions**

INTERVENTIONS

1. Task-Specific Training
- Practice functional tasks
- Walking, transfers, ADLs

2. Strengthening Exercises
- Resistance training
- Progressive muscle strenggthening

3. Balance Training
- Standing balance exercises
- Coordination drills

4. Gait Training
- Walking practice
- Use of parallel bars, walkers
- Gait re-education

5. Other Interventions
- Constraint-Induced Movement Therapy (CIMT)
- Assistive devices & orthotics

Expected **Outcomes**

Improved Functional Mobility & Independence

In class Assessment

Case Title

“Time Is Brain: Medical Decision-Making in Acute Stroke”

Case Scenario

Mr. Ramesh, a **62-year-old male**, with a history of **hypertension and type 2 diabetes**, was brought to the emergency department with **sudden onset of right-sided weakness and slurred speech**. Symptoms started **2 hours ago**.

Clinical Findings:

BP: **190/110 mmHg**
Pulse: **88/min**, regular
GCS: **14/15**
Right facial droop present
Right upper & lower limb power: **2/5**
Blood glucose: **160 mg/dL**
An **urgent CT scan of the brain** is advised.

Decision Point 1: Emergency Management

Q1. What should be the **immediate medical priorities** on arrival?
(List any four)

Case Progression

CT scan reveals **no evidence of intracranial hemorrhage**.
Time since symptom onset is **2 hours 30 minutes**.

Decision Point 2: Choice of Treatment

Q2.a) Identify the type of stroke.
b) Is the patient eligible for thrombolytic therapy?
c) Name the drug and the critical time window.

Case Progression

The patient receives **IV thrombolytic therapy (tPA)**.
After 24 hours, repeat CT scan shows **no bleeding**.

Decision Point 3: Prevention of Complications

Q3. Mention **four medical management strategies** to prevent complications during hospitalization.

Decision Point 4: Secondary Prevention

Q4. Outline the **secondary prevention measures** to reduce the risk of recurrent stroke.
(List any four)

Physiotherapy Integration

Q5.a) When can physiotherapy be initiated in this patient?
b) Mention **two ways medical management influences physiotherapy planning**.