CHAPTER 18

STROKE AND ITS CONSEQUENCES

1. IDENTIFYING STROKES
2. STROKE CAUSES
3. STROKE SYMPTOMS
4. STROKE - DIAGNOSTIC TESTS
5. STROKE TREATMENT
5. THE GLASGOW COMA SCALE - AN ASSESSMENT TOOL
6. STROKE- BRAIN INJURY AND HOW TO IDENTIFY IT
7. CARE PLANNING AND PATIENT EDUCATION OF THE STROKE PATIENT
8. REHABILITATION AFTER STROKE

STROKE FOR THE LAYPERSON

WWW.DEARNURSES.COM

EDUCATION FOR THE PATIENT AND FAMILY ABOUT STROKE.

SESSIONS 3-COMA/HEARING

THE STROKE PATIENT MAY GO INTO A COMA. LEARN MORE ABOUT COMA, BY CLICKING ON: CLINICAL NURSING VIDEOS CALLED SESSIONS.
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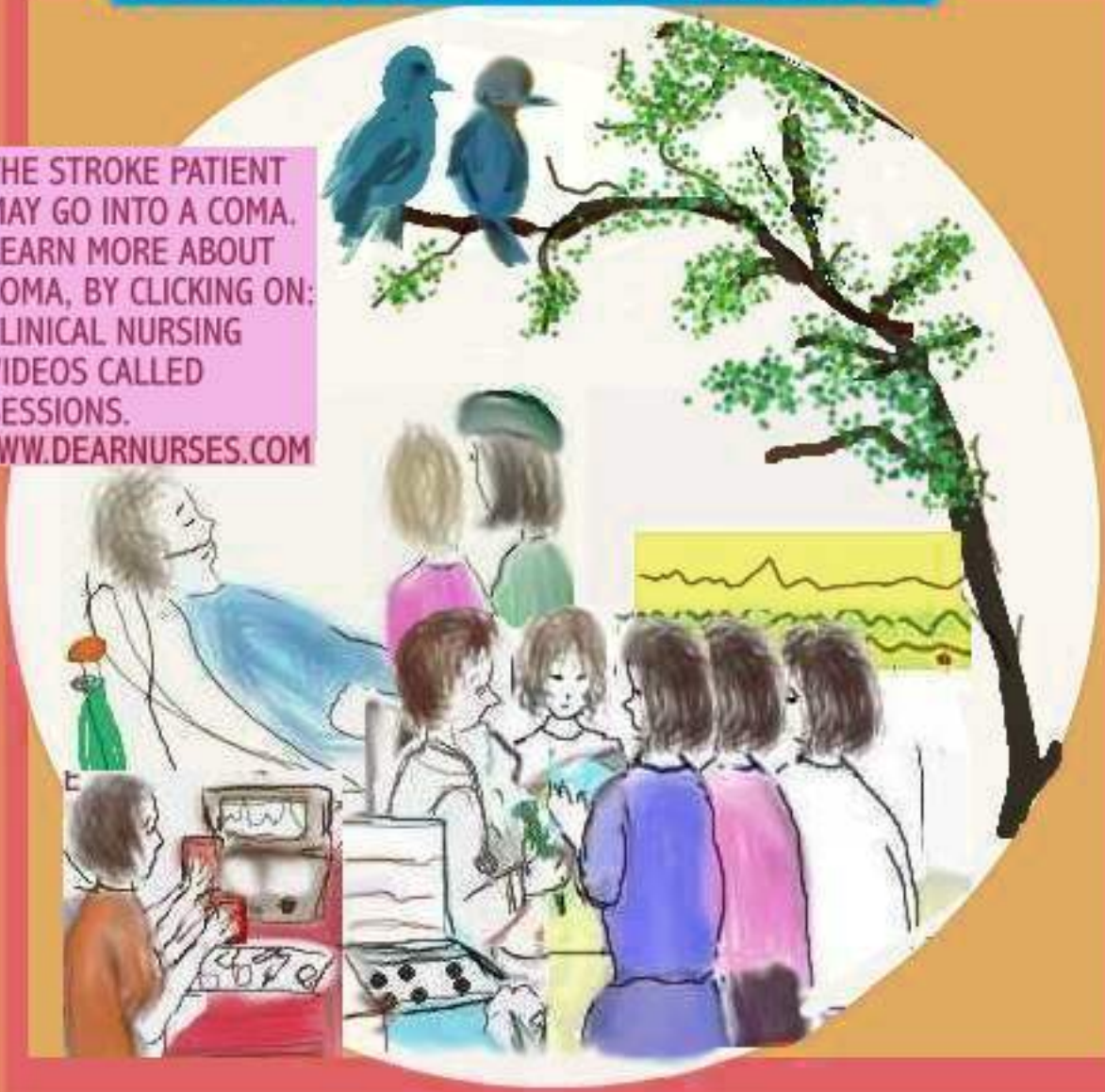


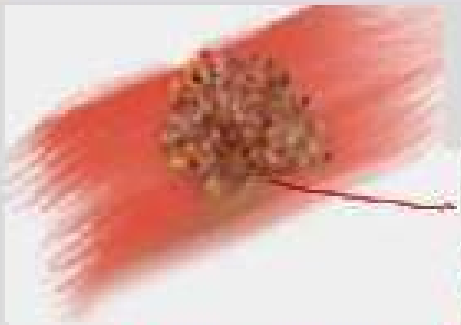
STROKE
A CASE STUDY

FOR THIS CASE STUDY, PLEASE READ: STROKE SERIES :- ASSESSMENT IN THE CLINICAL SETTING: WWW.DEARNURSES.COM

Sally is having a conversation with her neighbor Ann. Ann suddenly notices Sally's speech is becoming garbled.Sally is 56 years old and has been complaining of intense headaches over the last week.

Ann took fast action and called 911. An ambulance arrived shortly afterwards and transported Sally to the Emergency Room nearby.

IDENTIFYING STROKES



blood clot obstructing blood flow

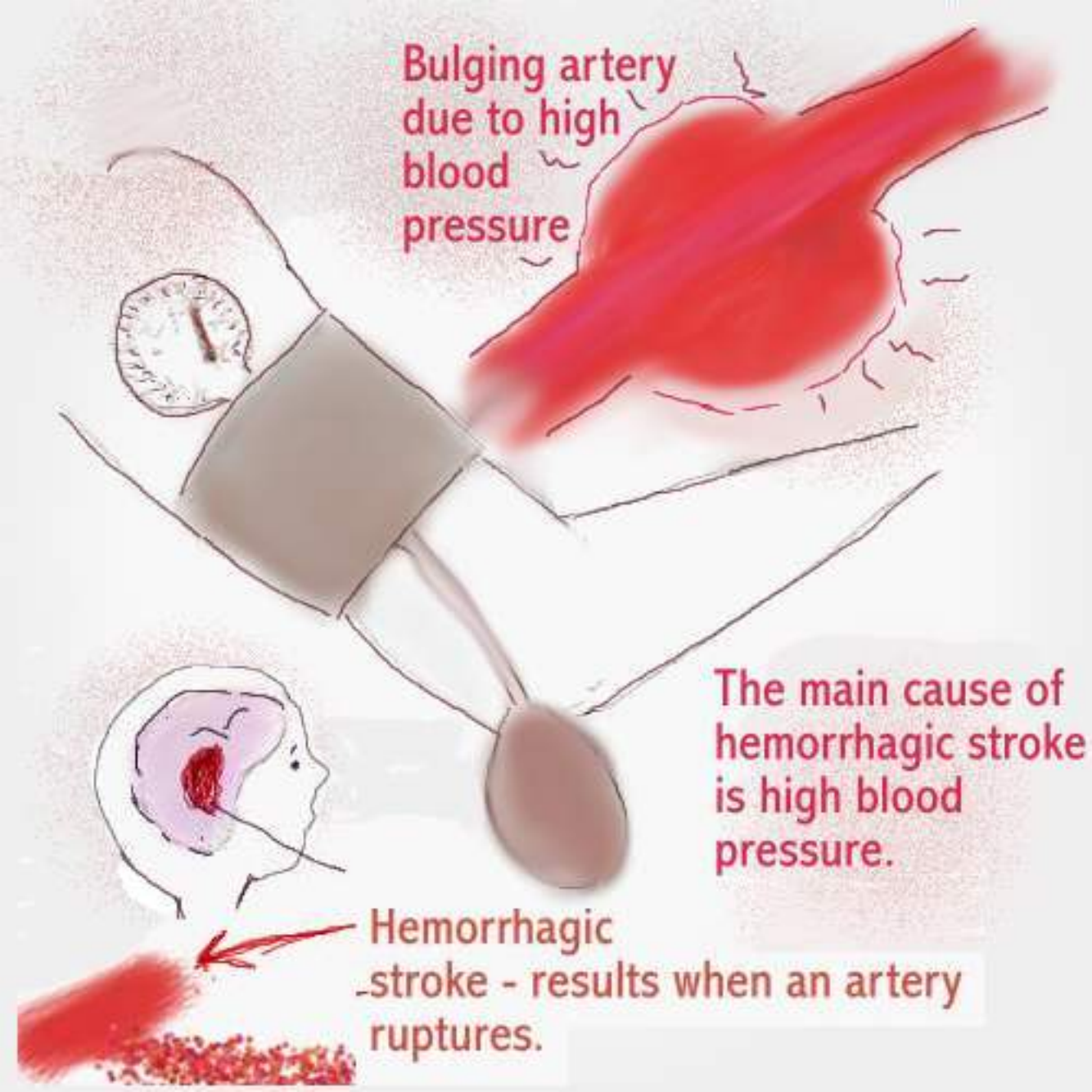
ISCHEMIC STROKE

STROKE OR "BRAIN ATTACK" HAS RECENTLY BEEN ON THE INCREASE, RESULTING IN DEATH OR DISABILITY. THE NERVE PATHWAYS IN THE BRAIN CROSS OVER. THUS INJURY TO THE BRAIN ON THE LEFT , WILL RESULT IN SYMPTOMS ON THE RIGHT AND VICE VERSA.

STROKES MAY BE CATEGORIZED AS ISCHEMIC OR HEMORRHAGIC. ISCHEMIC STROKES ACCOUNT FOR A LARGE NUMBER OF STROKES, ABOUT 85%. HEMORRHAGIC STROKES ARE FEWER. TIA (TRANSIENT ISCHEMIC ATTACK) MAY OCCUR VERY SUBTLY, BUT MAY ALSO MEAN THE POSSIBILITY OF A STROKE IN THE FUTURE AND SHOULD NOT BE IGNORED.

HEMORRHAGIC STROKE CAUSED BY RUPTURE OF A BLOOD VESSEL IN THE BRAIN.

HYPERTENSION IS ONE OF THE MAIN CAUSES.


Bulging artery due to high blood pressure
The main cause of hemorrhagic stroke is high blood pressure.
Hemorrhagic stroke - results when an artery ruptures.

HEART

BLOOD CLOT

STROKE MAY RESULT FROM ATRIAL FIBRILLATION.

BRAIN

ATRIAL FIBRILLATION IS A CONDITION THAT AFFECTS THE HEART. A BLOOD CLOT MAY TRAVEL FROM THE HEART TO THE BRAIN, CAUSING A STROKE.

HEPARIN THERAPY IS A FORM OF TREATMENT USED FOR THE PATIENT IN ATRIAL FIBRILLATION.

HEPARIN INFUSION

STROKE PREVENTION SHOULD BE A MAJOR CONSIDERATION. MEDICATIONS KNOWN AS STATINS, WHICH WORK TO REDUCE THE CHOLESTEROL IN THE BLOOD, MAY BE ORDERED BY THE DOCTOR. ANTIHYPERTENSIVE DRUGS TO LOWER BLOOD PRESSURE MAY ALSO ORDERED.

OXYGEN via nasal cannula - supplemental oxygen - saturation is 97%.

EKG 115

ATRIAL FIBRILLATION

O2 97%

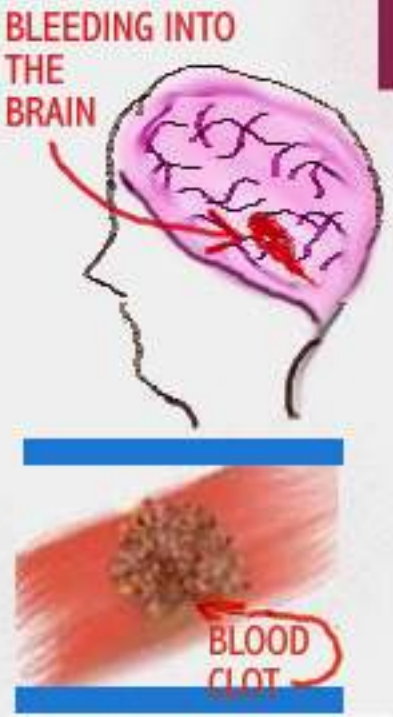
BP 110/65

Respirations 14

BLOOD PRESSURE

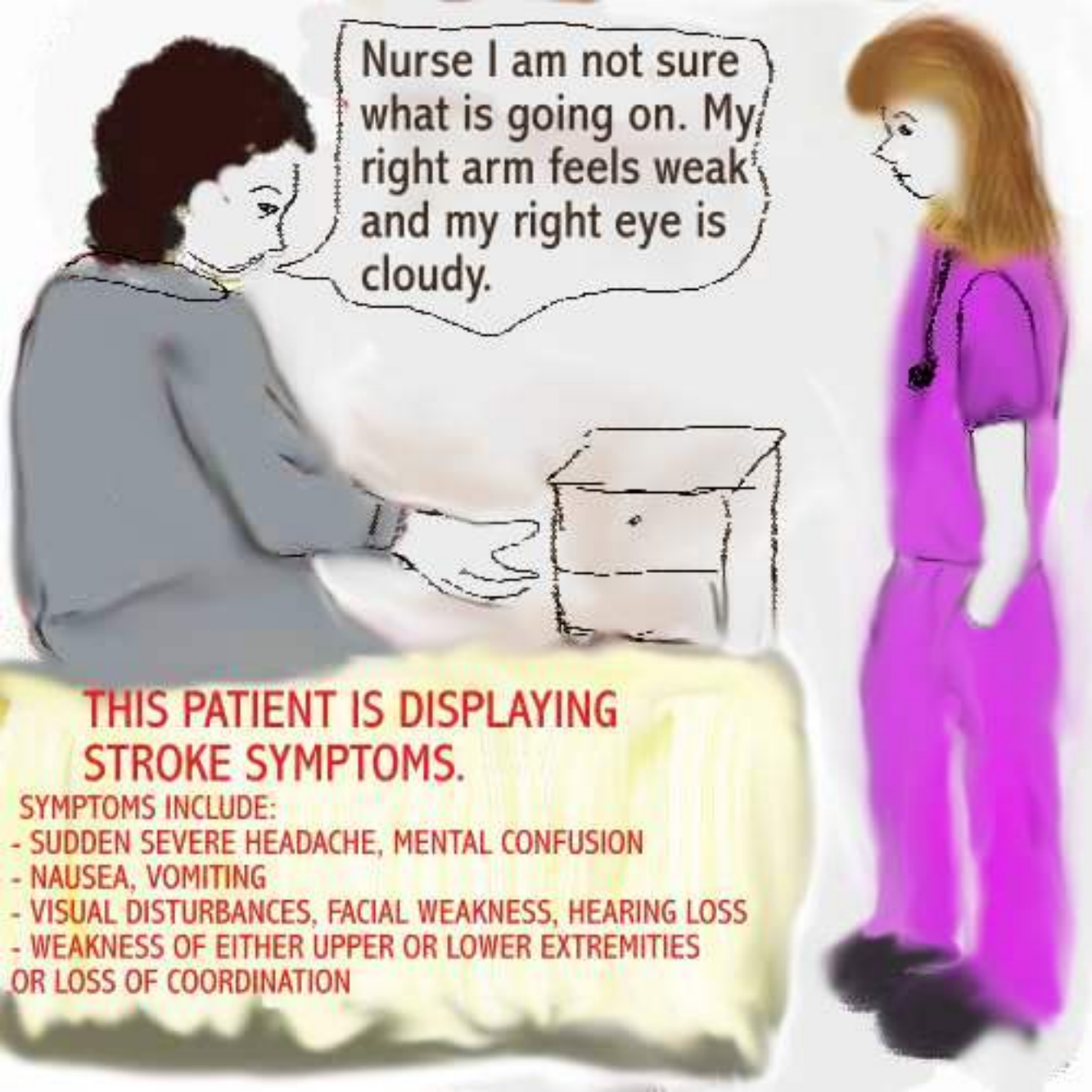
IV SITE, CLEAR

THE DIABETIC PATIENT MAY BE AT RISK FOR STROKE.

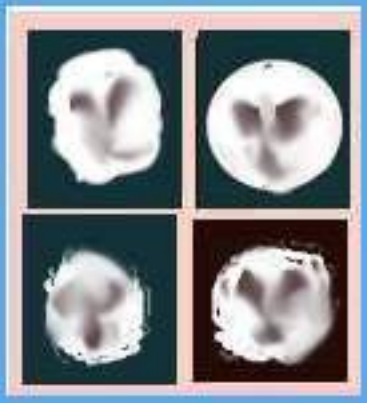


Patients with diabetes may be at risk for cerebrovascular disease and possible stroke.
Altered mental status,slurred speech and weakness of one limb are symptoms of this condition.

Patients with diabetes are prone to hypertension and coronary artery disease. Elevated blood pressure and severe headache are symptoms of hypertension.
Chest pain, tightness in the chest and shortness of breath are symptoms of cardiac disease. The doctor usually decides the management of these medical problems.


Nurse I am not sure what is going on. My right arm feels weak and my right eye is cloudy.
THIS PATIENT IS DISPLAYING STROKE SYMPTOMS.
SYMPTOMS INCLUDE:
- SUDDEN SEVERE HEADACHE, MENTAL CONFUSION
- NAUSEA, VOMITING
- VISUAL DISTURBANCES, FACIAL WEAKNESS, HEARING LOSS
- WEAKNESS OF EITHER UPPER OR LOWER EXTREMITIES OR LOSS OF COORDINATION

CAT SCAN



CAT SCAN AND MRI ARE SOME OF THE DIAGNOSTIC TESTS THAT ARE USED TO CONFIRM THE DIAGNOSIS OF STROKE.

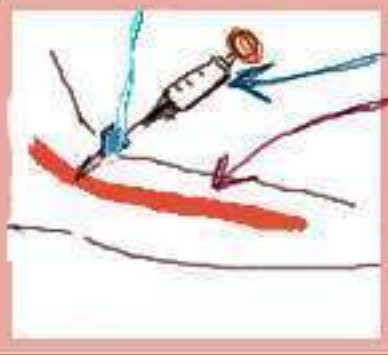
PLEASE REFER TO CHAPTER 17, TO LEARN MORE ABOUT DIAGNOSTIC TESTS.

MAGNETIC RESONANCE IMAGING

IN X-RAY

ANGIOGRAPHY

CEREBRAL ANGIOGRAPHY IS ANOTHER DIAGNOSTIC TEST THAT IS DONE TO CONFIRM THE LOCATION OF A STROKE (CEREBROVASCULAR ACCIDENT).



WHEN ANGIOGRAPHY IS PERFORMED, THE RADIOLOGIST INJECTS DYE INTO A MAJOR BLOOD VESSEL LIKE THE FEMORAL ARTERY (ARTERIAL PUNCTURE) AND X-RAYS ARE TAKEN. THE DYE ENABLES THE BLOOD VESSELS TO BE OUTLINED AND SEEN UNDER A FLUROSCOPIC SCREEN IV FLUIDS ARE ALSO GIVEN TO THE PATIENT. THE NURSE MONITORS AND RECORDS THE VITAL SIGNS, OXYGEN SATURATION AND ANY SIGNS OF REACTION TO DYE.

MANAGEMENT OF THE STROKE PATIENT

RUPTURE OF AN ANEURYSM CAUSED BY BLEEDING IN THE BRAIN,

MAY RESULT IN STROKE SYMPTOMS.

BLEEDING INTO THE SUBARACH-NOID SPACE, CAUSED BY A RUPTURED ANEURYSM

SUBARACHNOID HEMORRHAGE

TO LEARN MORE ABOUT SUBARACHNOID HEMORRHAGE, PLEASE READ: SUBARACHNOID HEMORRHAGE (A CASE STUDY) WWW.DEARNURSES.COM

TREATMENT OF HEMORRHAGIC STROKE

MANAGEMENT OF THE STROKE PATIENT WILL DEPEND ON THE SEVERITY OF SYMPTOMS. IF A HIGHER LEVEL OF CARE IS NEEDED, ICU CARE WILL BECOME NECESSARY. TYPICALLY, HEMORRHAGIC STROKE IS MANAGED WITH ANTIHYPERTENSIVE DRUGS LIKE LABETALOL AND DECREASING PRESSURE IN THE BRAIN WITH AN EVD, ICP MONITORING AND DRUGS SUCH AS MANNITOL.

STROKE TREATMENT

AN EXTERNAL VENTRICULAR DEVICE (EVD) IS PLACED IN THE VENTRICLE TO MEASURE ICP.

INTRACRANIAL PRESSURE MONITORING (ICP) IS DONE IN THE ICU , AS A HIGHER LEVEL OF CARE IS REQUIRED. READ MORE ABOUT ICP: MENINGITIS AND ICP MONITORING (A CASE STUDY) WWW.DEARNURSES.COM

TREATMENT OF EMBOLIC STROKE

TPA, A "CLOT BUSTER " IS THE DRUG THAT IS USED IN THE TREATMENT OF EMBOLIC STROKE.

TPA (TISSUE PLASMINOGEN ACTIVATOR) IS GIVEN INTRAVENOUSLY WITHIN THE FIRST THREE HOURS OF THE DIAGNOSIS OF STROKE SYMPTOMS. ANTICOAGULATION THERAPY IS ALSO USED TO PREVENT THE FORMATION OF MORE CLOTS.

ACCURATE PATIENT ASSESSMENT

THE GLASGOW COMA SCALE IS THE COMMONLY USED NEUROLOGICAL ASSESSMENT SCALE, IN THE CLINICAL SETTING.

1.If your patient does not respond when spoken to (following commands) Try some simple form of stimulation for example, shaking the shoulder or a gentle tap.
Be sure to document your assessment .

2.If your patient continues not to respond, assess the airway for patency.

3. Check vital signs and oxygen saturation.

4. Document findings and notify MD. Your patient may need a work-up and a higher level of care if not in a monitored area.

GCS=1-15

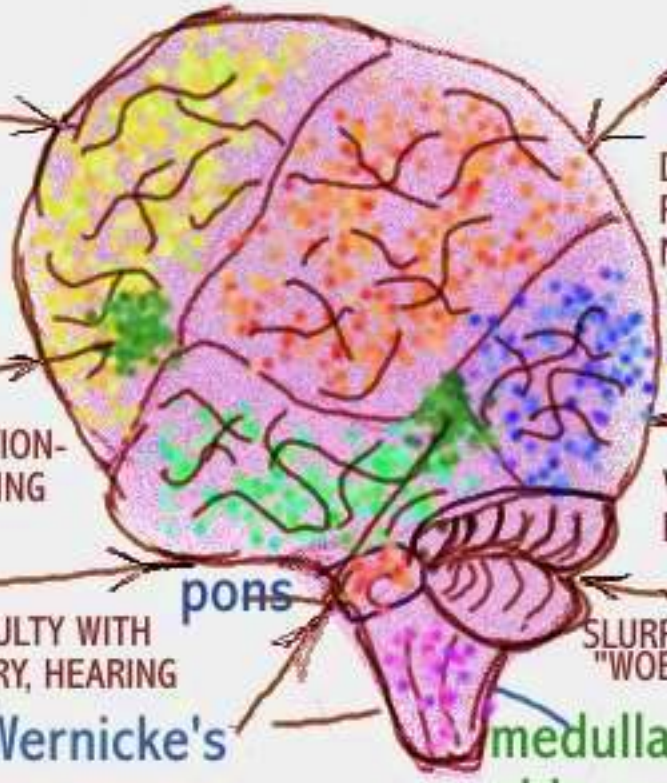
GLASGOW COMA SCALE

EYE OPENING RESPONSE
SPONTANEOUS=4
VERBAL=3
PAIN=2
NO RESPONSE=1

VERBAL RESPONSE
ORIENTED=5 CONFUSED=4
INAPPROPRIATE =3
INCOMPREHENSIBLE=2
NO RESPONSE=1

MOTOR RESPONSE OBEYS COMMANDS=6
PAIN=5 WITHDRAWS=4 FLEXION=3
EXTENSION = 2 NO RESPONSE =1

FUNCTIONS OF THE BRAIN



frontal lobe
DIFFICULTY WITH MOTOR ACTIVITY, BLADDER CONTROL, SOCIAL BEHAVIOUR AND PERSONALITY

parietal lobe
DIFFICULTY WITH READING, WRITING, MATH CALCULATION, DISTINGUISHING RIGHT FROM LEFT

Broca's area
SPEECH PRODUCTION- DIFFICULTY EXPRESSING WORDS

occipital lobe
VISUAL DISTURBANCES

temporal lobe
DIFFICULTY WITH MEMORY, HEARING AND SPOKEN LANGUAGE

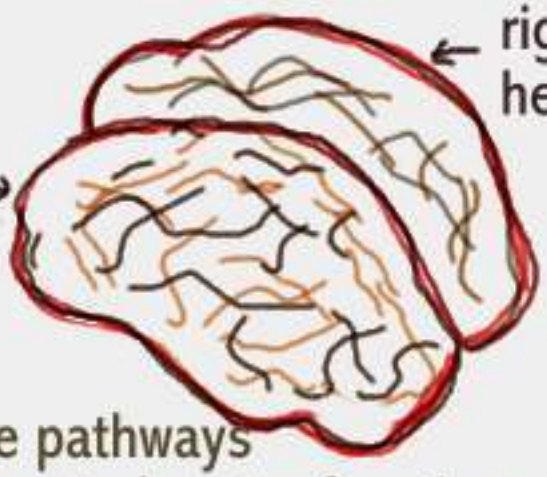
pons

cerebellum
SLURRED SPEECH, "WOBBLY" WALK, SHAKY HANDS

Wernicke's area
SPEECH COMPREHENSION- DIFFICULTY UNDERSTANDING WHEN SPOKEN TO

medulla oblongata

Each brain has 2 cerebral hemispheres (right and left) .In most people the left hemisphere is the dominant one.



Nerve pathways that control motor function in each cerebral hemisphere cross to the opposite side. Injury to the left side of the brain will result in motor weakness on the right and vice versa.

Tom had a stroke involving the parietal lobe. He now has trouble with math calculation and distinguishing right from left.

Responsible for higher learning, math calculation, distinguishing right from left.

Tom is also having trouble with math calculation. He thinks 3+2 +4 =11.

CRANIAL NERVE 2 - OPTIC - RESPONSIBLE FOR VISION

CRANIAL NERVE ASSESSMENT IS A HELPFUL TOOL IN ASSESSING THE STROKE PATIENT. TO LEARN MORE ABOUT THIS TOPIC, PLEASE REFER TO: STROKE SERIES-ASSESSMENT IN THE CLINICLAL SETTING, VOLUME2. WWW.DEARNURSES.COM

SARA HAS DOUBLE VISION. DIPLOPIA IS THE TERM USED FOR DOUBLE VISION.

CRANIAL NERVE -3 (OCULOMOTOR)
CONSTRICTS THE PUPILS WHEN LIGHT
IS SHONE INTO THE EYES

FOLLOWING A STROKE A PATIENT MAY HAVE DIFFICULTY WITH VISION, SPEAKING OR SWALLOWING. PLEASE GO TO:
WWW.DEARNURSES.COM
AND ENJOY STROKE SERIES
ASSESSMENT IN THE CLINICAL SETTING
(VOLUMES 1,2 AND 3)

AN EYE EXAM MAY BE NECESSARY AFTER A STROKE, PLEASE READ CHAPTER 17.

CRANIAL NERVE - 9 GLOSSOPHARYNGEAL
CRANIAL NERVE -10 VAGUS

THESE TWO CRANIAL NERVES ARE USUALLY CHECKED TOGETHER. PATIENTS WHO HAVE BRAIN INJURIES INCLUDING STROKE, MAY HAVE DIFFICULTY SWALLOWING OR GAGGING WHEN FOOD GOES THE WRONG WAY.

MRS.S HAD A STROKE.SHE IS AWAITING A TEST KNOWN AS A SWALLOWING EVALUATION. THIS WILL EVALUATE HER ABILITY TO SWALLOW AND TO ENSURE THAT FOOD WILL GO DOWN THE CORRECT WAY.

DIETARY CHANGES SUCH AS THICKER LIQUIDS MAY BE NECESSARY, IF THERE IS CRANIAL NERVE DAMAGE.

CRANIAL NERVE-10 IS THE VAGUS NERVE IT ALSO AFFECTS THE HEART RATE.

PATIENT AND FAMILY EDUCATION SHOULD NOT BE IGNORED.

CARE PLANNING OF THE STROKE PATIENT

ASSESSMENT

If a patient complains of heat and pain in the calf. Assessment of the calf should be done.

Document findings and notify the doctor as soon possible.

A SPECIALTY BED OR AN AIR MATTRESS TO PREVENT SKIN BREAK-DOWN, IS COMMONLY USED IN THE STROKE PATIENT.

GOOD MOUTH CARE HELPS PREVENT INFECTION.

DVT (DEEP VEIN THROMBOSIS

TED hose

EYE CARE

CORNEAL ABRASION CAN BE PREVENTED, BY USING EYE DROPS IF THERE IS NO BLINK REFLEX. MD WILL ORDER THIS.

CARE PLAN SHOULD INCLUDE:

- POTENTIAL FOR SKIN BREAKDOWN
- POTENTIAL FOR PNEUMONIA, ORAL AND WOUND INFECTION
- POTENTIAL FOR DVT

PATIENT AND FAMILY EDUCATION SHOULD NOT BE IGNORED. REMEMBER, ICU CARE CAN BE OVER-WHELMING FOR A LAYPERSON.

Sequential Compression Device (SCD)

Used to prevent DVT

STROKE - THE IMPORTANCE OF GOOD BODY ALIGNMENT

FOLLOWING A STROKE, THE WEAK LIMB SHOULD BE WELL ALIGNED, TO PREVENT PERMANENT CONTRACTURES. A SOFT BALL OR A ROLLED WASHCLOTH PLACED IN THE AFFECTED HAND WILL SUPPORT AND PREVENT CONTRACTURES.

HELPFUL HINTS:

1) FOLLOW MD ORDERS.
2) Q2 HR. TURNS TO PREVENT SKIN BREAKDOWN AND PNEUMONIA.
3) ACTIVE AND PASSIVE ROM TO PREVENT CONTRACTURES. PT/OT AS ORDERED
4) MOUTH CARE TO PREVENT INFECTION
5) PATIENT AND FAMILY EDUCATION IS NECESSARY.

PREVENTION OF FOOTDROP IS ALSO IMPORTANT. PATIENTS USUALLY HAVE A PAIR OF TENNIS SHOES OR SPECIAL SPLINTS PUT ON WHILE IN BED, TO PREVENT FOOTDROP.

STROKE FOR THE LAYPERSON

LEARNING THE VISUAL WAY

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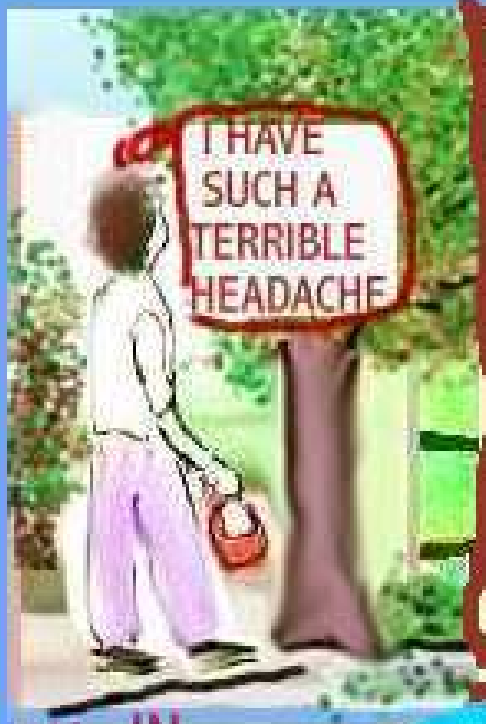
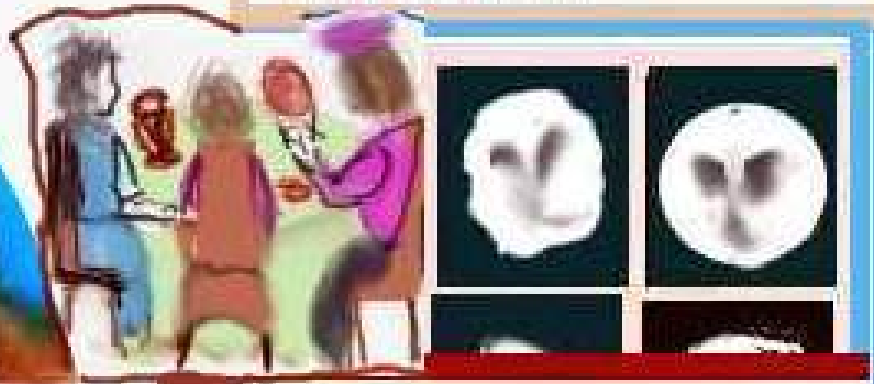
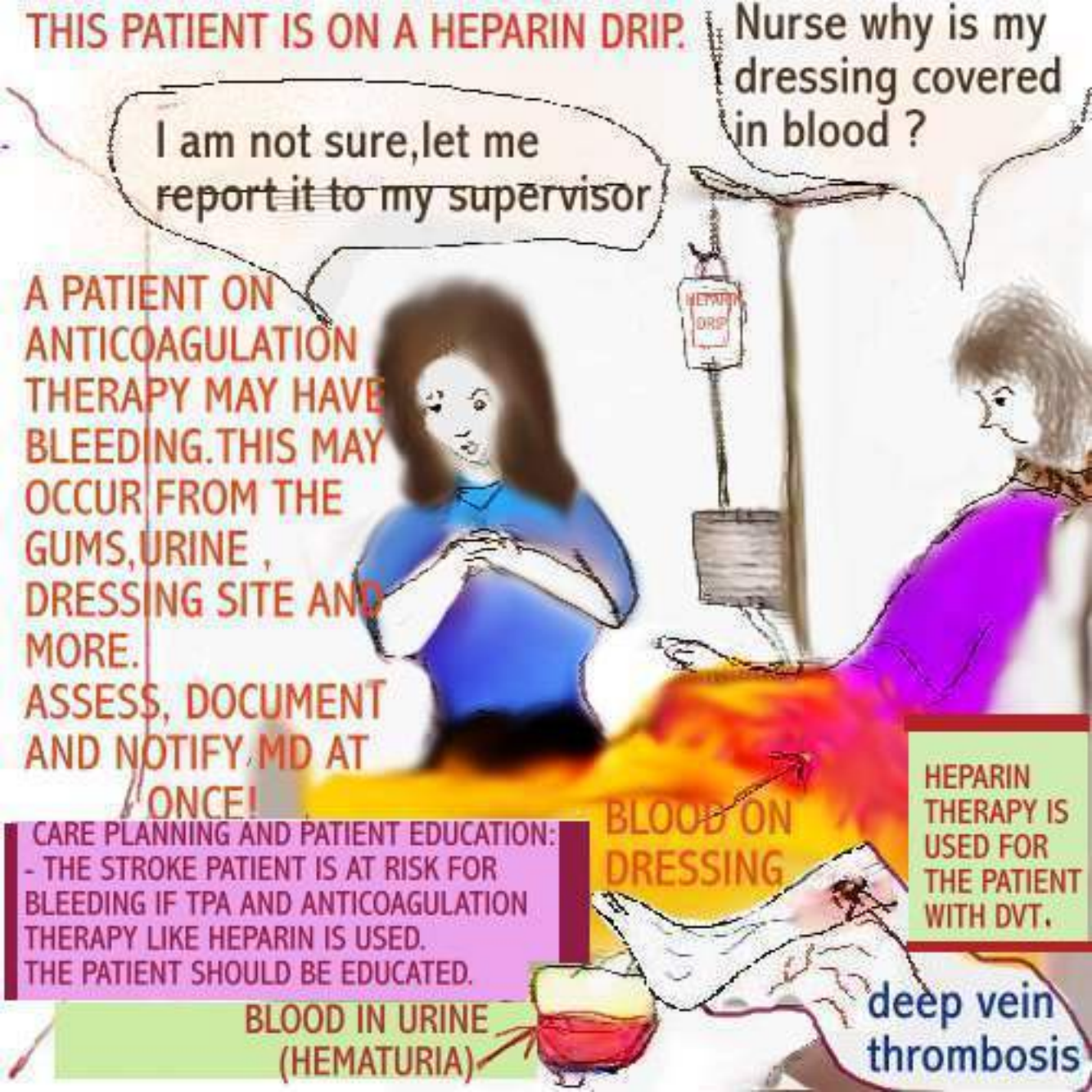


TIM WAS ABOUT TO GET INTO HIS CAR, WHEN HE NOTICED HIS LEFT ARM FELT WEAK.

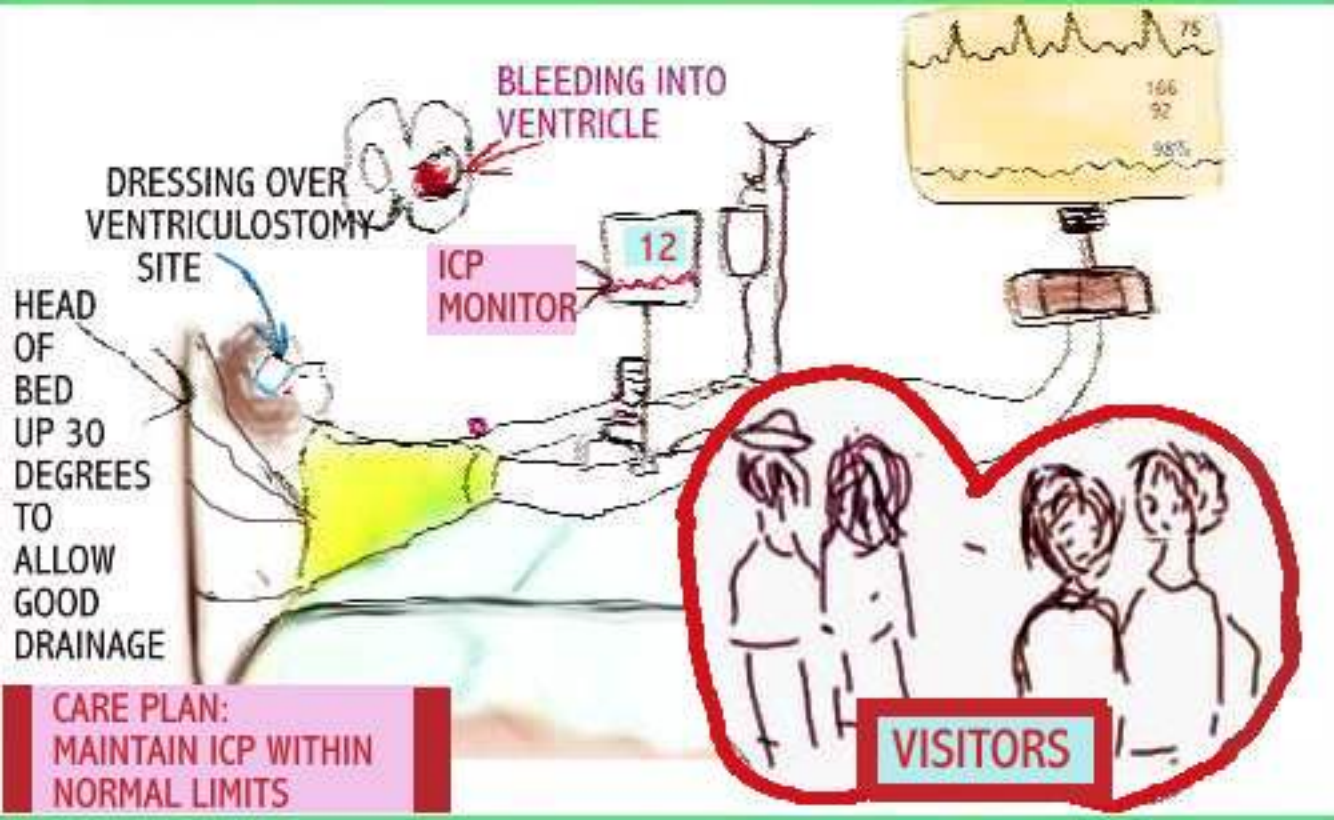
HELPFUL INFORMATION FOR THE LAY PERSON




THIS PATIENT IS ON A HEPARIN DRIP.
Nurse why is my dressing covered in blood ?
I am not sure,let me report it to my supervisor
HEPARIN DRIP
A PATIENT ON ANTICOAGULATION THERAPY MAY HAVE BLEEDING.THIS MAY OCCUR FROM THE GUMS,URINE , DRESSING SITE AND MORE.
ASSESS, DOCUMENT AND NOTIFY MD AT ONCE!
CARE PLANNING AND PATIENT EDUCATION:
- THE STROKE PATIENT IS AT RISK FOR BLEEDING IF TPA AND ANTICOAGULATION THERAPY LIKE HEPARIN IS USED.
THE PATIENT SHOULD BE EDUCATED.
BLOOD ON DRESSING
HEPARIN THERAPY IS USED FOR THE PATIENT WITH DVT.
BLOOD IN URINE (HEMATURIA)
deep vein thrombosis

PATIENT EDUCATION

INCREASED ACTIVITY AT THE BEDSIDE, WILL ULTIMATELY RESULT IN AN INCREASE IN INTRACRANIAL PRESSURE. THIS DEMANDS MORE OXYGEN AND MORE WORK FOR AN ALREADY DAMAGED BRAIN. THIS MAY CAUSE SECONDARY DAMAGE.



THE NURSE HAS AN IMPORTANT ROLE TO PLAY IN EXPLAINING TO FAMILY AND FRIENDS, THE NEED FOR REST UNTIL THE PATIENT HAS GREATLY IMPROVED AND CAN WITHSTAND MORE ACTIVITY AT THE BEDSIDE. THE NURSE SHOULD ALSO AVOID TOO MANY ACTIVITIES AT THE SAME TIME. FOR EXAMPLE, FOLLOWING SUCTIONING, WAITING SOME MINUTES BEFORE STARTING A BATH.

SEIZURE ACTIVITY

CARE PLANNING FOR THE SEIZURE PATIENT

THE STROKE PATIENT MAY BE AT RISK FOR SEIZURES. IT IS IMPORTANT TO INCLUDE THE POTENTIAL FOR SEIZURES IN THE CARE PLAN.

HERE IS A SAMPLE OF A CARE PLAN FOR THE SEIZURE PATIENT:

- POTENTIAL FOR SEIZURES
- ASSESS AND MAINTAIN A PATENT AIRWAY,
- O2, SUCTION
- SIGN OVER BED
- PADDED BED RAILS

SEIZURE PRECAUTIONS

- BED RAILS UP AT ALL TIMES
- HOB OF BED UP 30 DEGREES OR AS ORDERED BY MD
- ROOM CLOSE TO DESK
- PATIENT AND FAMILY EDUCATION ABOUT SEIZURES

FOR MORE INFORMATION ON SEIZURES, PLEASE READ: SIMPLIFYING SEIZURES.

CARE PLAN SHOULD INCLUDE FALL PRECAU -TIONS.

BOTH PATIENTS HAVE SOMETHING IN COMMON. THEY ARE BOTH UNSTABLE ON THEIR FEET AND WILL NEED TO BE CLOSELY WATCHED.

PT/OT- PHYSICAL AND OCCUPATIONAL THERAPY ARE ORDERED BY THE DOCTOR, TO HELP PATIENT AND FAMILY ADJUST TO A NEW WAY OF LIFE. THIS MAY BE ONGOING.

STROKE SYMPTOMS LIKE ARM OR LEG WEAKNESS, MAY RESULT FROM A TRAUMATIC INJURY.

THIS PATIENT WAS INVOLVED IN AN ACCIDENT A MONTH AGO. SHE IS RECEIVING PHYSICAL THERAPY TO LEARN TO WALK AGAIN. SHE IS A FALL RISK, AS SHE IS UNSTABLE ON HER LEGS. HER RIGHT LEG IS WEAKER THAN HER LEFT.

THIS PATIENT HAS A PROSTHETIC LEG ON THE LEFT SIDE. SHE HAD AN ABOVE KNEE AMPUTATION FOLLOWING A CAR ACCIDENT. SHE IS LEARNING TO WALK AGAIN AND IS UNSTABLE ON HER LEGS.

REHABILITATION OF THE STROKE PATIENT MAY REQUIRE PHYSICAL THERAPY FOR A PROLONGED PERIOD OF TIME. PATIENT AND FAMILY EDUCATION IS NECESSARY DURING THIS CRUCIAL PERIOD.

THE STROKE PATIENT MAY BE LEFT WITH PERMANENT WEAK-NESS TO ONE OR MORE EXTREMITY.

MEETNG WITH SOCIAL WORKER AND FAMILY

THE SOCIAL WORKER USUALLY ARRANGES ANY SERVICES THAT MAY BE NECESSARY FOLLOWING DISCHARGE FROM AN ACUTE CARE FACILITY.

REHABILITATION MAY BE PROLONGED FOR SOME PATIENTS. THE BRAIN FOR EXAMPLE, IS SOMETIMES SLOW IN SHOW-ING SIGNS OF IMPROVEMENT.

SOME PATIENTS MAY NOT BE ABLE TO BE MANAGED AT HOME DURING THE REHABILITATION PHASE AND MAY REQUIRE A LONG TERM CARE FACILITY.
THE OUTCOME OF A STROKE MAY PRESENT MANY CHALLENGES FOR PATIENT AND FAMILY!

LONG TERM CARE FACILITY