

# Neurological Timeline: 1950-2000

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## **Diagnosis**

“Brain attack”, Cerebrovascular accident (CVA) or Stroke

## **Symptoms**

- Sudden numbness or weakness of the face, arm or leg, especially on one side of the body
- Sudden confusion, trouble speaking or understanding
- Sudden trouble seeing in one or both eyes
- Sudden trouble walking, dizziness, loss of balance or coordination
- Sudden, severe headache with no known cause

## **Gathering Information for Diagnosis**

### “Interview”

Questions were asked of the patient, such as “How old are you?”, “Do you remember what happened?”, “Have you ever experienced these symptoms before?”. The patient was coherent, but not answering questions clearly. She was complaining of a bad headache and numbness in one of her arms. She had been eating regularly and drank some water while being interviewed, noting that she felt nauseas. Her daughter had found her on the ground disoriented, but not hurt. These observations along with the highlighted symptoms were reviewed.

### Available Technology

During this time period, a few technologies became available to better understand and diagnose conditions within the brain. A **CAT (Computerized Axial Tomography) scan** could be performed to see a three dimensional image of the brain and any abnormalities that might be present. This can indicate the

type of stroke a person is having. An **MRI (Magnetic Resolution Image)** or **fMRI (Functional Magnetic Resolution Image)** might also be performed to get a more detailed image of the soft tissue of the brain. The fMRI actually measures a change in blood flow and can produce an image that indicates where the stroke is stemming from. **EEG (Electroencephalography)** tracks the brain’s electrical currents and very detailed image of the brain. An **ECG (Electrocardiogram)** became available during the early 1900’s and is used to track the activity of the heart. This test provides information about the strength and electricity of the heart. **Doppler ultrasonography** might also be used to detect the direction of blood flow in the body and is commonly used to diagnose strokes because strokes are a result of a blocked artery, potentially causing a change in blood flow. A **PET (Positron Emission Tomography)** measures activity of the brain at the cellular level. This is used along CAT scans and MRI’s.

## **Understanding of the condition**

It has been known since the time of Hippocrates in 600 B.C. that what is now known as a stroke causes paralysis and convulsions. The Greeks termed it *apoplexy*. Since then, many advances have been made, including the development of the technologies listed above. A “brain attack” is known to decrease or obstruct blood supply to the brain and the affected area can no longer function correctly. It is also known that strokes, if not treated, can cause long-lasting neurological damage. During this time period, surgeries were performed to isolate blocked arteries and understand how the condition occurs. Drugs, including aspirin, were found to be effective in preventing strokes and pre-conditions such as smoking and stress were studied in more detail working to increase prevention methods.

### **Recommended Treatment**

Once the type of stroke is determined by an MRI or CT scan, oxygen may be administered and blood pressure may be regulated. For an ischemic stroke, or a blood clot stroke, clot dissolving medicines may be given if it is caught quickly. Aspirin may also be administered to reduce blood pressure. Blood sugar levels and fever will also be monitored. For a hemorrhagic stroke or a bleeding stroke, blood pressure will be regulated with drugs, along with drugs for headache, confusion and restlessness. If the bleeding is heavy, surgery may have to be performed to relieve some of the blood and pressure. Be aware of the pre-cursors to a stroke and take necessary measures to prevent them from occurring.

### **Advances in Neuroscience from 1950-2000**

- **1953:** Nathaniel Kleitman and Eugene Aserinsky use an EEG to study the brain of a sleeping person

- **1963:** Nobel Prize awarded to John Eccles, Alan Lloyd Hodgkin and Andrew Fielding Huxley for discovering the communication pathways of neurons using chemical signals
- **1974:** M.E. Phelps, E.J. Hoffman and M.M. Ter Pogossian develop the PET scanner
- **1979:** Nobel Prize awarded to Sir Godfrey Hounsfield and Dr. Alan Cormack for developing the CT (CAT) scan
- **1997:** Nobel Prize awarded to Stanley B. Prusiner for discovering genes of infections prions, or cells that could be involved in brain related diseases such as Alzheimer's.

Many other advancements were made in the field of neuroscience during this time period, but it would take pages to acknowledge them all. Some of them can be found on the visual timeline.

### **Refernces**

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