



Introduction

- Oxford dictionary gives the meaning of death as
 - "The end of life".
- Chamber"s twentieth century dictionary defines death as – "Extinction of life."
- Black's law dictionary defines death as "The cessation of life; the ceasing the exist".

Definition

Death may be defined as permanent & irreversible cessation of three interlinked vital systems of body, called tripod of life, namely – the nervous, circulatory & respiratory systems.

(Medico legal definition)

Types of death

1. Somatic death/systemic death /Clinical death:

It means complete & irreversible stoppage of vital functions .

2. Cellular death/molecular death :

It means death of tissues & cells of body individually

Irreversible cessation of functioning brain, heart, and lungs resulting in complete loss of sensibility and ability to move the body. It is the extinction of personality or the death of the body as a whole.

 Cells of different tissues of the body are still alive and dies after sometime at different rate

Cessation of heart beating:-Clinical criteria:

- Absence of pulse (central i.e. carotid)
- Absence of heart sound on repeated prolonged auscultation.
- 3. A flat electrocardiogram (ECG).

Cessation of breathing:-Clinical criteria

- 1. Absence of respiratory movement
- 2.Absence of breath sound on thorough auscultation of chest. (Central)

Cessation of brain activity:-Clinical criteria

- 1.Generalized flaccidity with generalized anesthesia.
- 2.Dilated fixed pupils, not responding to light
- 3.Absence of motor responses within the crapiners of motor responses.
- 4.Absence of corneal reflexes.

Cellular or molecular death

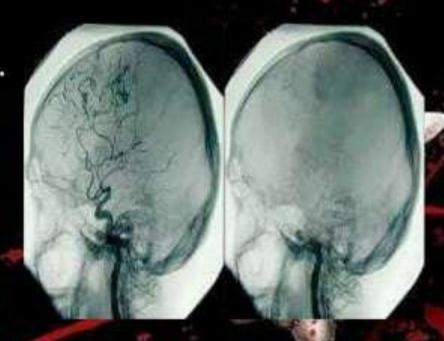
- Somatic death is followed by progressive disintegration of body tissues and is called as cellular or molecular death.
- In absence of circulation and respiration different cells die at different times.
- Death of some cells are mentioned below in sequential order from the earliest:-

Brain Death

Permanent & irreversible cessation of function of brain irrespective of function of other

organs like heart, lungs.





Types of brain death

Cortical death

- Permanent & irreversible cessation of function of cerebral cortex is called cortical death.
- Death of the cortex with an intact brain stem.
- Brain stem death
- Cerebrum is intact but loss of all vital centre causes the victim to be irreversible comatose and incapable of spontaneous breathing.
- Combined brain death:

Criteria for diagnosing brain death

- The patient must be in a deep coma, which is not due to depressant drugs, metabolic or endocrine disorder.
- The patient must not be in hypothermia.
- The patient must be on a mechanic ventilator/heart-lung machine.

- Diagnostic test for brain death:-
- ✓ Absence of corneal reflex.
- ✓ Dilated and fixed pupil not reacting to light.
- ✓ Absence of vestibulo-ocular reflex.
- ✓ Absence of cranial nerve response to painful

stimuli.

✓ Absence of cough reflex.

Difference of somatic & molecular death

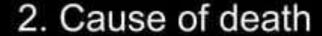
Somatic	Molecular
Complete & irreversible stoppage of functions three vital organs -brain, heart & lungs.	individual cells takes place
Muscles response to electric stimuli	do not response to electric stimuli .
organs can be removed for transplantation	organs cannot be removed for transplantation
It precedes molecular death.	It follows somatic death

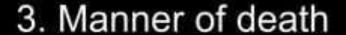


Three main aspects to be considered:



Mood of death











1. Mode of death

- The term "mode of death" usually refers to the system that initiates the process of death.
- Stoppage of which system initiated the process of death.

These modes are:

- Coma. (failure of nervous system).
- Syncope (failure of circulatory system).
- Asphyxia (failure of respiratory system).

Coma

- Coma means insensibility or loss of consciousness, which may be partial or complete depending on the degree of involvement of the C.N.S.
- Causes Cerebral compression, Cerebral injuries, Any growth, Cerebral embolisment of the compression of the compr

Asphyxia

Asphyxia is a condition caused by interference with respiration, or due to lack of oxygen in respired air due to which the organ and tissues are deprived of oxygen causing unconsciousness or death.

Hypoxia & Anoxia

Hypoxia

 Lack of supply of oxygen to the tissues below normal is known as hypoxia.

Anoxia

Anoxia means total lack of oxygen in the tissues.

Syncope

Syncope is the sudden cessation of the action of the heart and failure of circulation leading to death.



2. Cause of death

Natural causes - Natural disease & geriatric causes

Unnatural causes – Injury, poisoning, drowning

etc.

*Obscure causes.



3. Manner of death

It is the way by which cause of death was produced.

1.Natural

2.Unnatural-Suicidal, homicidal, accidental

*Undetermined/unexplained

WHO Syntax regarding writing cause of death

I. Cause of death

- a) Direct cause ... Myocardial infarction (due to or as a consequence of)
- b) Antecedent cause ...Coronary thrombosis (due to or as a consequence of)
- c) Underlying cause ... Coronary atherosclerosis

II. Contributory causes...

(Usually applicable for geriatric death) MM, Hypercholesterolemia.

Death certification

A doctor is the person who is legally authorized to declare a death & issue a death certificate.

- To issue a death certificate/Condition of certifying death:
- Inspection of the dead body by the doctor imp
- Full satisfaction about the death

Cont...

- The doctor must sure of the cause of death
- The doctor should free from least suspicion of foul play
- The doctor has seen/examined the person within
 14 days before death as alive.
- The doctor registered as a qualified medical practitioner

Death certificate (WHO)

	ased (Name) aged aged during his last illness and that to the best of on (date) was as stated below:
Cause of Death	Approximate interval between onset and death
1. Disease of condition or condition	
directly leading to death	(a) Years Months
(due to or as consequence of) Days Hour	S
Antecedent cause	(b) Years Months
(due to or as consequence of) days hours	
Morbid conditions, if any,	(c) Years Months
giving rise to the above cause, days hours	
stating the underlying condition last	of the same
2. Other significant conditions	Years Months
contributing to the death but not	
related to the disease or condition	
causing it.	
Address or rubber stamp of the institution	Signature, designation, degree and

Tests for death declaration

- 1.For stoppage of function of NS
- Look for movement -No movement
- Look for response-No response to stimulus
- Look for jerk-No jerks
- Look for reflex-No reflex
- Confirmation by EEG.

2. For Stoppage of respiration

- Inspection , palpation & auscultation for respiration—repeated for at least 5 min.
- Feather test –Feather/cotton –Nose -Movement
- Mirror test –Mirror –Nose/Mouth -Hazy
- Winslow"s test –Water bowl –Chest Light reflection

3. For stoppage of circulation

- Inspection, palpation & auscultation for HS-repeated for at least 5 minutes.
- Detection of pulse & BP : absent
- Icard"stest -1 ml of 20% alkaline fluorescein S/C –Colour change spread
- Ligature test(Magnusstest) –Ligature –Finger –Swollen & Bluish
- Finger web inspection (Diaphanous test) –Hand –Light Pinkish & translucent / Yellowish & opaque.
- By applying heat –Skin –Hot Object –Blister & redness.
- Confirmation by ECG.
- Earliest & surest sign of death : Segmentation/trucking of blood
- column in the retinal blood vesceles—by opthalmoscope

Suspended Animation/Apparent Death / Death Trance / Catalepsy:

- Death trance is a condition in which all the signs of life or vitality are seemed to be absent although the individual still remains alive.
- It is a condition, wherein the vital functions of body (heart beat and respiration) are maintained at a low pitch reduced to a minimum for sometime, that they could not be detected by routine methods of clinical examination.

- Person appears to be dead because of very feeble or minimum function of his body systems
- The function of circulatory, respiratory or nervous system may not be perceived by conventional method though the person is still alive.
- Function of these system may return after sometime by proper resuscitation

Causes of Suspended Animation/Apparent Death/Death Trance

- Voluntary- Yoga practicing.
- Involuntary-
- 1. Newborn infants
- 2. Drowning
- 3. Electrocution
- 4. Thunder injury
- Sever diarrhea/Cholera

- 6. Poisoning
- Anesthesia
- 8. Shock
- 9. Sun-stroke
- 10. Snake bite
- 11. Epilepsy
- 12. Head injury
- 13. Sever na cosis

Medico legal importance of Suspended Animation

- 1.It can lead error if precautions are not taken.
- Confusion may lead to issue of a dead certificate for a live person
- An alive person may be sent to mortuary.
- 4. Premature burial / funeral.
- May create professional problems for doctor.
- May create social/public agitation/problems

Unexpected and Sudden Death

Definition:

Death is biologically, legally, and literally an absolute and irreversible event.

WHO Definition:

Who dies within 24 hours of symptoms appearing.

Forensic Definition:

Who dies in minutes or even seconds of the onset of the symptoms.

Sudden death

Sudden death may be defined as a death which occur suddenly or unexpectedly when a person not known to have been suffering from any dangerous disease, injury or poisoning is found dead or dies within 24hours after the onset of terminal illness.

Incidence is approximately 10 %

Causes Of Sudden Death

- Diseases of Cardiovascular system(40-50%)
- Diseases of Respiratory system(15-23%)
- Diseases of Central Nervous system(10-18%)
- Diseases of Alimentary system(6-8%)
- Diseases of Genito-urinary system(3-5%)
- Miscellaneous(5 -10%)

 It is usually not possible to certify the cause of death

An autopsy is necessary to obviate the

 possibility of uppatural death

possibility of unnatural death.

