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Q1:Define the following term with physiological and pathological examples “

Ans:(A)Atrophy: the atrophy is a (body tissue or organ) was away ,especially as a result of degeneration of cells,or become vestigial during evolution “the cell muscle will atrophy “.

Example: A part of normal development include sharing and the involution of the thymus in early childhood, and the tonsils in adolescence-

(B)Hypertrophy: increase in cell size or organ or tissue due to increase in the size of the cell there are no new cell in the hypertrophy ,just bigger cell containing increased amounts of structural proteins and organelles, the heart and kidney have increased susceptibility to hypertrophy

Example: 1” physiological enlargement of the uterus during pregnancy occur as a consequence of estrogen stimulated smooth muscles hypertrophy and smooth muscle hyperplasia

2” pathological hypertrophy is in cardiac muscle as a result of hypertension or aortic valve disease

(C)hyperplasia: (over formation) an increase in the number of cells which result increase the size of an organ ,it is the result of increased cell mitosis ,or division

Example: physiological hyperplasia hormonal hyperplasia ,the proliferation of the glandular epithelium of the female breast at puberty and during pregnancy,

(D) Metaplasia : is the reversible replacement of one differentiated cell type with another mature differentiated cell type, in simplistic terms, is if the original cells are not robust enough to withstand the new environment if the stimulus that caused metaplasia is removed or ceases, tissues return their normal pattern of differentiation.

Example: the changes associated with the respiratory , such as smog or smoke .

Q2: How does calcium ions influx affect the cell?

Ans: The movement of calcium ion also plays a role in gene expression and affects the synapses , that are located between neurons and transmit electrical or chemical signal of various strength from one

cell to a second cell , . They play important role in signal transduction pathways where they act as second messenger ,in neurotransmitter release from neurons,

Q3: What is free Radical ? What is the effect of reactive oxygen specie on the cell.

Ans; Free Radical: you see, there are these nasty little molecules called free radicale. They wreak all kind of from toxins in many products , food , and environments that we are exposed to regularly , the first sign of free radical damage is often also connected to the breakdown of internal autiimmune disorders.

(B) Reactive oxygen species are implicated in cellular activity to a variety of inflammatory responses induring cardiovascular diseases in general harmful effect of reactive oxygen species on the cell are most often damage of DNA or RNA oxidations of poly saturated fatty acids in lipids .

Q4:Write down some difference between apoptosis and necrosis .

Ans: apoptosis vs necrosis

- 1: Both apoptosis and necrosis cause cell death .
- 2; Apoptosis can be .both physiological and pathological while increase is always pathological.
- 3; while the apoptic cell death always occurs on a single cell .necrosis always occurs on a single cell necrosis always occurs in group of cell.
- 4: there is cell shrinking of the apoptotic cell while cell swelling occure in irreversible cell injury or necrotic cell.
- 5: the other important distinguishing feature in that appotosis damage dose not occur until the last stage while in necrosis there is inflammation, since the cell membrane us permeable and hence the damage products are leaked into the surrounding leading to in necrosis .
- 6: apoptosis elevation of cellular calcium and rapid reduction of volume of the cell .
- 7: necrosis cell have died but the basis shape and architecture of the tissue endure.

Q5:write a note an air embolism.

Ans: An embolism is an intravascular solid, liquid or gaseous mass that is carried by the blood to a site distant from its point of origin 99% emboli arise from dislodgment of thrombi and therefore called thrombeombolism , their are some types of embolism , pulmonary thromenbolism , systemic

thrombism ,fat embolism ,, gas embolism , amniotic fluid embolism. . Occlusion of embolus which is brought to the site through the circulation is called pulmonary thrombism. It cases 95% from deep leg vein , systemic thrombism occlusion of systemic arteries due to detached thrombus which originate in the left side the heart or large artery is called systemic thrombism. Fat embolism due to fracture of long bones release microscopic fat globules into the circulation fat microvasculature, both directly and by triggering platelet aggregation ,this effect is produced when fatty acid is released from lipid globules which causes local toxic endothelial injury.

The end