

CELL INJURY

1. Irreversible hypoxic myocardial cell injury occur after:
 - A. 3-5 min
 - B. 10-20 min
 - C. 30-40 min
 - D. 1-2 hours
 - E. 3-4 hours
2. Reperfusion of irreversibly ischemic tissue can lead to:
 - A. Increase oxygen free radicals influx into the cell
 - B. Activation of intracellular acid hydrolase
 - C. Further ATP depletion
 - D. All of the above
 - E. None of the above
3. Which of the following is NOT the morphological feature of reversible hypoxic cell injury?
 - A. Blebs
 - B. Endoplasmic reticulum swelling
 - C. Dispersion of ribosomes
 - D. Cell membrane defects
 - E. Myelin figures
4. Free radicals can be initiated within cells by:
 - A. Absorption of ionizing radiation
 - B. Endogenous oxidative reactions
 - C. Metabolism of exogenous chemical such as CCl_4
 - D. All of the above
 - E. None of the above
5. Free radical damages cells by the following method EXCEPT:
 - A. Lipid peroxidation of cell & organelle membrane.
 - B. Activation of intracellular lysozyme
 - C. Oxidative modification of protein
 - D. Breakage of nuclear & mitochondrial DNA
 - E. All of the above.
6. Which of the following enzyme is NOT responsible for the termination of free radical reaction?
 - A. Oxidase
 - B. Superoxide dimutase
 - C. Catalase
 - D. Glutathione peroxidase
 - E. All of the above

7. Which of the following statements regarding chemical injury to cells is TRUE?
- Water soluble chemicals act directly by combining to critical molecule component or cellular organelle.
 - Water soluble chemical does most damage to cells that metabolize them.
 - Lipid soluble chemicals are converted to reactive toxic metabolites which bind to membrane protein or lipids by covalent bond or form free radicals.
 - P450 mixed function oxidase in liver & other organs metabolize most exogenous & endogenous toxins.
 - All of the above.
8. Which of the following statement regarding cell necrosis is TRUE?
- Autolytic digestion of dead cells tend to result in liquefactive necrosis.
 - Heterolytic digestion of dead cells tend to result in coagulative necrosis.
 - Karyolysis of nucleus means increase basophilia & shrinkage of nucleus.
 - Karyorrhexis means fragmentation of shrunkened nucleus.
 - None of the above
9. Which of the following statements regarding apoptosis is FALSE?
- Apoptosis may occur in viral hepatitis.
 - Graft versus host disease (GVHD) is an example of apoptosis induced by cytotoxic T cells.
 - Apoptotic cells are shrunkened & has chromatic condensation.
 - Apoptotic cells are phagocytosed by leukocytes
 - Apoptotic bodies are nuclear fragments & organelles tightly packed together by cytoplasmic membrane.
10. Which of the following statements regarding subcellular alteration in cell injuries is FALSE?
- Autophagy is pronounced in cells undergoing atrophy.
 - Smooth endoplasmic reticulum hypertrophy occurs as an adaptive response to allow for better drug detoxification in chronic barbiturate use.
 - Mitochondrial number remain constant during cell hypertrophy
 - Megamitochondria is found in alcoholic liver disease.
 - None of the above.
11. Causes of steatosis includes:
- Diabetes mellitus
 - Alcohol abuse
 - Protein malnutrition
 - Hypoxia
 - All of the above

12. Foamy macrophages can be found in:
- Atherosclerotic plaque.
 - Sites of inflammation & necrosis
 - Xanthomas
 - Cholesterosis
 - All of the above
13. In diabetes mellitus, glycogen vacuoles can be seen in:
- Hepatocytes
 - Pancreatic islet cells
 - Myocardial cells
 - Proximal convoluted tubular epithelial cells
 - All of the above.
14. Which of the following statements is FALSE?
- Carbon & coal dusts accumulates in the alveolar macrophages, resulting in anthracosis.
 - Lipofuscin is a telltale sign of free radical injury to cells.
 - Hemochromatosis represents systemic iron overload without liver or pancreatic damage.
 - Large accumulation of bilirubin occurs in liver in obstructive jaundice, forming bile lakes
 - None of the above
15. Causes of metastatic calcification includes:
- Hyperparathyroidism
 - Hyperthyroidism
 - Addison's disease
 - Leukaemia
 - All of the above

ANSWERS:

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|------|-------|-------|
| 1. C | 6. A | 11. E |
| 2. A | 7. E | 12. E |
| 3. D | 8. D | 13. E |
| 4. D | 9. D | 14. C |
| 5. B | 10. C | 15. E |